SINGAPORE, THE NEXT RMB OFFSHORE FINANCIAL CENTER

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DECLARATION

I hereby declare that the thesis is my original work and it has been written by me in its entirety.

I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.

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30 April, 2014

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Summary

This paper studies the strength of Singapore as a RMB offshore financial hub, Singapore's potential to become the next RMB offshore financial centre, and the arbitrage issue that Singapore may encounter. Since China launched its RMB internationalization roadmap and economic reform, the RMB offshore hub has been established in many economies. However, comparing to Hong Kong, which is the only RMB offshore centre currently, these RMB hubs still have more space to grow. The economic integration of Asian countries, especially ASEAN countries, will also accelerate the RMB regionalization in Asia. Furthermore, Singapore's regulation system and financial infrastructure can manage potential risks of the RMB offshore financial activity. The second part of this thesis focuses on these RMB practices in Singapore. In order to show Singapore's rapid growth in the RMB cross-border transaction and in the RMB offshore financial market,I begin with explaining the RMB cross-border clearing system and then analyze the RMB offshore financial market in Singapore, namely the stock market, loan market and bond market. All of these markets are developing fast, especially the offshore RMB bond market in Singapore. Thereafter, I address the arbitrage issue which Hong Kong faced in its offshore RMB market, so that this will provide some lessons to the Singapore monetary authority when it develops the offshore RMB business. These measures show that Singapore is a promising RMB offshore financial centre and will play an important role in the RMB internationalization, especially regionalization.

Key words: the RMB internationalization, regionalization, offshore financial centre, Singapore, bond, arbitrage

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Chapter 1 Introduction

The internationalization of RMB (Renminbi, the official currency of the People's Republic of China) has been launched in the early 21 century. Since the destructive financial crisis happened in Asia in 1997 and 1998, Asian countries has been seeking new approaches to reduce the risk. During the Asian financial crisis, Hong Kong was attacked and survived from the financial crisis after spending 15 billion USD (US Dollar), as reported by China Daily[1]. Thereafter, the safety of foreign reserve has been proposed. Many countries in Asia diverse their foreign reserve currencies by increasing the proportion of Special Drawing Rights (SDR) or other international currencies. The scholars in China also worried about the huge amount of USD foreign reserve in China. Thus, they proposed that China should launch the internationalization of its currency RMB, so that it can reduce the loss of foreign reserve value and improve the safety of China's financial system in the long run. Since China officially brought up the RMB (Renminbi, China's currency) internationalization and capital account convertibility in early 21 centry, many economies have started their RMB business, and more trades are settled and cleared in RMB. As mentioned by Tian Guoli[2], the Chairman of the Bank of China Limited, the RMB has become the ninth largest currency in the international foreign exchange market. The stock of overseas RMB rose from 10 billion RMB in 2010 to 1,000 billion RMB in 2013. This dramatical growth reflects the tremendous potential of the RMB to become one of the major currencies in the world. With the exchange reform, the interest rate liberalization and the step-by-step capital account liberalization,

[1] The Asian financial crisis of 1997-1998, Chinadaily, http://www.chinadaily.com.cn/china/HK15th/2012-06/07/content_15483587.htm

[2] BOC pitches RMB business in Singapore, BOC Singapore clears 1.37 trillion yuan in first eight months of 2013, Bank of China, http://www.boc.cn/en.bocinfo/bi1/201309/t20130930_2508430.html

the RMB will play an increasingly important role in the international currency system. Many countries or jurisdictions would like to seize this opportunity to develop the offshore RMB business. Offshore financial centers (OFCs), such as London and Singapore, have officially announced their great interest in becoming RMB offshore financial centers. This chapter will discuss the development of Singapore as a RMB hub and its promising future as the next RMB offshore financial center. Since the establishment of currency agreement between People's Bank of China and Monetary Authority of Singapore (MAS), 2010, the RMB capital pool in Singapore has increased significantly. This laid a foundation for Singapore to provide RMB financial services and compete for the RMB offshore financial center outside China.

The structure of this thesis is organized as follows. Chapter one will introduce main concepts of RMB internationalization and offshore financial centers. The second chapter reviews the main literatures of RMB internationalization. The third chapter explains the cross-border RMB clearing system. The fourth chapter discusses the rapid development of the offshore RMB markets, including trade, and investment, The second last chapter discussesthe possible arbitrage problem, which happened in Hong Kong and Taiwan (Zhao Wenhui, 2012[3]). And the last chapter concludes the main findings of this thesis.

1.1 Background of RMB internationalization

China luckily escaped from the Asian Financial Crisis because the capital market is not open in 1997. Thereafter, some researchers advocated to slow down the RMB opening-up process. Meanwhile, due to the rising economic power of China, neighboring countries gradually adopted Chinese RMB for trading. RMB started the regionalization process.

[3] Zhao Wenhui. 2012. "Investors in Taiwan Gain Profit through Arbitrage", *Technology & Industry Across the Straits*, March 2012, pp. 54-61

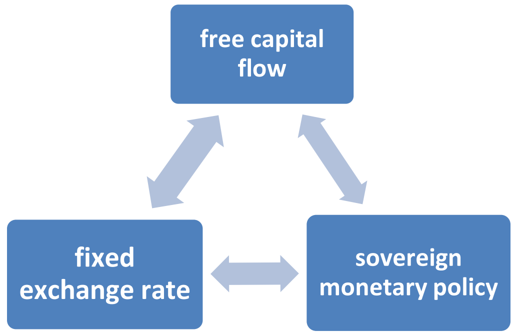
Subprime crisis brought the severe impact to the global economy. International currency encountered adjustment leading to the acceleration of the pace of world economic integration. The scope of bilateral currency exchange increasingly expanded under the framework of “Chiang Mai Initiative”. From 2008, China successively signed the currency exchange agreements with Korea, Hong Kong, Malaysia, Indonesia and other countries or regions. All these events indicate that Chinese government valued the RMB internationalization more and more, thus promots the process of RMB internationalization. In 2009, Chinese State Department officially developed the RMB cross-border business settlement pilot which showed the willingness of Chinese government to promote RMB in the neighboring countries. To adjust the global economic development trend and strengthen China’s national power, scholars supported RMB “going abroad” to realize the internationalization of RMB and strive RMB to become one of the major currencies used in the world trade. In May 2013, People’s Bank of China appointed the Singapore branch of Industrial and Commercial Bank of China to inaugurate RMB settlement and clearing services in Singapore. This is the first RMB clearing bank outside China, which implies that Singapore will deal with increasing offshore RMB services. Singapore as an offshore financial center has gained more attention in terms of RMB trade.

However, there is a famous trilemma concerning international currency. If China wants RMB to be internationalized, it should try to find a position in the Trilemma. One country can only maintain two sides of the triangle (Maurice, Shambaugh, and Taylor, 2004[4]), as shown in Figure 1. If China wants to maintain independent monetary policy, it has to give

[4] Maurice Obstfeld, Jay C. Shambaugh, and Alan M. Taylor.2004. “TheTrilemmain History:Tradeoffs among Exchange Rates,Monetary Policies, and Capital Mobility”, NBER Working Paper No. 10396

up the fixed exchange rate policy.

Figure 1 The Trilemma



Note: Maurice Obstfeld, Jay C. Shambaugh, and Alan M. Taylor, 2004.

China is gradually changing from fixed exchange rate system to the floating rate system, so currently the exchange rate policy in China is the managed floating rate system. This means that the RMB exchange rate is under certain management by the People's Bank of China. With the process of RMB internationalization, free capital flow will eventually realize. To foster RMB internationalization and regionalization, China established a free trade zone in Shanghai in September, 2013. This is a great step towards the convertibility of capital account.

However, the floating exchange rate system will increase the risk of financial system. From the practice of Hong Kong, it is obvious that the volume of RMB trade has a significant relationship with the exchange rate between RMB and USD. This will stimulate hot money to speculate in China's financial markets, thus may harm the stability of financial system and enlarge the probability of financial crisis. Compared with the trading cost between mainland China and Hong Kong SAR, the trading cost between mainland China and Singapore is much higher[5], therefore it is harder to arbitrage in

[5] HuaXia Shibao, "Fake trade in Shenzhen"2013-04-27, http://money.163.com/13/0427/00/8TE64JKM00252G50.html

Singapore's RMB market using trading background.

Hence, it is very important that China establish a RMB offshore financial center other than Hong Kong to motivate the healthy growth of RMB international trade.

1.2 Background of offshore financial centers (OFCs)

Before analyzing the strengths of Singapore to become the RMB offshore financial center, it is important to know the definition and types of offshore financial centers. Different scholars and practitioners have emphasized different aspects of offshore financial centers since early 1970s. There are three main aspects of OFCs: provide financial business to nonresidents; advantageous regulatory and supervisory environment; low or no taxations (Errico and Musalem, 1999; IMF, 2007).Besides, International Monetary Fund (IMF, 2007) focuses on the perspective of the scale of financial services and the size of domestic economy. One recent definition of OFC is given by IMF in April, 2007.

"*An OFC is a country or jurisdiction that provides financial services to nonresidents on a scale that is incommensurate with the size and the financing of its domestic economy*."
(IMF, April, 2007)

This definition captures the characters of the world famous offshore financial centers, for example, the leading OFC, Bermuda, became world's fourth largest reinsurance market in 2004, in terms of total net underwritten premiums (IMF, 2007); over two thirds of FDI came into Brazil through OFCs in 2008.

If categorized by business pattern, there are two types of OFCs. One is international financial centers, such as London, New York, Hong Kong, and Singapore. The other is tax heavens, for example, Caribbean, Cyprus. If categorized by formation types, there are also mainly two types of OFCs: one is naturally formed, such as London and Hong Kong; the other one is artificially established, for instance, Singapore, New York, and tax havens. The former becomes OFC because of large financial transactions and innovation of financial markets; while the latter is established intentionally.

Although these OFCs have different formations and characterizations, they share some common features. Besides what mentioned in the IMF's definition of OFCs, these OFCs also capture other features like capital accounts liberalization, floating exchange rates, advanced financial infrastructures, and sTable political and economic environment.

Singapore is a world renowned offshore financial center and ranks third in foreign exchange transactions. It is also a rising wealth management center in the world (MAS[6]). These show the advantage of Singapore to become the next RMB offshore financial center.

1.3 Singapore's strength as a RMB OFC

By ranking fifth in the International Financial Centers Development Index in 2012, and successfully remainingthe fourth position in the Global Financial Centers Index in 2013, Singapore shows its advantage as a world financial center, especially in wealth management. The strong growth of the Singapore economy laid a solid foundation for developing the RMB offshore financial services.

History

Three years after independence, at Oct. 1st, 1968, Singapore government allowed the bank of America to establish ACU (Asian Currency Unit) within its banking system to

[6] Wealth Management and Insurance, http://www.mas.gov.sg/singapore-financial-centre/overview/wealth-management-and-insurance.aspx

provide foreign currency services to nonresidents. This is considered as the commencement of Singapore offshore financial services. Compared with New York, which established offshore financial center in the year of 1981, Singapore started its offshore financial services ten years early. The early establishment of offshore financial services helps Singapore build and improve its financial regulation and supervision system, which provides Singapore a unique strength to become an OFC. After the development in the past 45 years, Singapore becomes one of the top financial centers in the world. In addition, the endless capital flow into Asia and the growth of emerging markets indicate that Singapore possesses a large potential market power in the world financial markets. To establish the RMB offshore financial center in Singapore will promote the usage of RMB as international settlement currency, and then accelerate the RMB internationalization process.

Through the relevant financial services of ACU (Asian Currency Unit), Singapore monetary authority obtained valuable experience in serving offshore currency. Hong Kong and Shanghai Banking Corporation (HSBC) first issued RMB bond on 18th April, 2012 in London. Before that, London markets only deals with major international currencies, such as USD, EUR, and JPY and so on. It is a good chance to enhance London's importance as a RMB offshore hub. Subsequently, Singapore also issued several RMB bonds in June, 2013. In addition, the inauguration of the RMB Clearing Center greatly increases the position of Singapore as a RMB offshore hub. Singapore separates offshore accounts from domestic account at the beginning of its offshore services, and gradually releases the regulation. This approach significantly reduces the financial risk and the burst of financial crisis. The 45-year long history of offshore financial services provides Singapore with systematical regulations and rich experiences towards emergent situations. Therefore, Singapore is a one of the suitable OFCs to develop RMB offshore services, and to limit the potential risks.

Geographic advantage

As a country which is nearest to the Malacca Strait, Singapore is the gateway to the Southeast Asia region. Based on the gradually grew trade volume, the Singapore economy realized rocketed growth. Located in the center of Southeast Asia, Singapore can easily connected with China, India, Malaysia, Myanmar, Viet Nam, Indonesia, Philippines, Thailand, Australia and New Zealand. Moreover, it is convenient for financial intermediaries to trade in Hong Kong, Tokyo and European financial market. These geographic advantages help Singapore become one of the centers of Asian financial markets.

RMB offshore financial center can refer to a country or jurisdiction outside China that collects overseas RMB and provides RMB financial services to non-residential users, including RMB deposits and loans, insurances, money exchanges, futures, options, capital clearing services, stocks, and bonds. As shown in Table 1, since China has signed currency swaps with four Southeast Asian countries (ASEAN), and the volume of swap tends to increase, it needs a gateway to sustain and stabilize RMB flow in this area. This Table also indicates that the RMB has gradually been accepted as a foreign reserve currency in ASEAN. Compared with Hong Kong, Singapore has more trade and connections with ASEAN countries, so that it is easier for Singapore to allocate RMB resources in ASEAN area. Furthermore, Singapore has a large RMB asset pool which is increasing rapidly in recent years and reached a deposit balance of 140 billion RMB at the end of September, 2013, and the cross-border RMB volume in Singapore ranked second largest outside China.

Table 1 Currency swaps between China and ASEN countries

Country	Time	Amount (billion RMB)
Malaysia	08.02.2009	80
Indonesia	23.03.2009	100
Singapore	24.07.2010	150
Thailand	22.12.2011	70
Malaysia (renewal)	08.02.2012	180
Singapore (renewal)	07. 03.2013	300

Note: data collected from People's Bank of China in Sep. 2013,http://www.pbc.gov.cn/

Another advantage of Singapore's geographic location over Hong Kong is its longer distance to mainland China. The longer distance makes companies difficult to conduct the fake trade and arbitrage and increases the cost of arbitrage. Therefore, the high transportation cost help limit the arbitrage of RMB between Singapore and mainland China. Hence, the increase of RMB transition volume is mainly due to real trade which benefits not only China but also ASEAN countries.

Financial infrastructure

In the report of MAS 2013, financial infrastructure is defined as:

"Financial infrastructure refers to the platforms that provide the services and facilities underpinning financial market activities, such as exchanges, clearing houses, and payment and settlement systems."(Objects and principles of financial supervision, MAS, April, 2013)

Obviously, financial infrastructure does not only refer to the building and electronic system for banking, but also includes services like clearing, settlements and exchanges. Singapore has various kinds of financial institutions, as can be seen in Table 2 (Appendices). Except banking sector, there are also reinsurances, brokers, andclearing houses. Moreover, for each type of financial institutions, there are more than three (inclusive) registered firms that offer alternative choices for various consumers.

The financial infrastructure in Singapore is both safe and efficient. The stable financial system and strong Singapore dollar, as well as the high standard of regulation and strict supervision, help the financial infrastructure to function safely. Advanced information technology, international electronic trading and clearing system, enable Singapore to provide 24/7 financial services to anywhere in the world, thus maximizing economic benefits at the lowest cost for all financial intermediations.

Besides the restriction of clearance, the relationship with mainland China is also a factor of building RMB offshore financial centers. Singapore outweighs London also in its offshore RMB clearing system. Announced on 2nd April, 2013, Industrial and Commercial Bank of China Limited (ICBC) became the first clearing bank in a country outside of China, signified a big step forwards to RMB internationalization. On 26th May, 2013, the Industrial and Commercial Bank of China Singapore branch officially started its RMB clearing services. ICBC provides three major RMB services, those are private banking hub, commodity and structured trade finance hub, and cash management hub (ICBC website[7]). With these RMB related and cross-border services, and under the cooperation of People's Bank of China and MAS, this is a milestone that banks and corporation can now settle and clear their RMB business in Singapore, not only in Hong Kong. This is the very first time that China authorized RMB clearing services outside China. Before this, banks and clients can only clear through Hong Kong or through

[7] ICBC Singapore Branch website.
http://www.icbc.com.cn/ICBC/%E6%B5%B7%E5%A4%96%E5%88%86%E8%A1%8C/%E6%96%B0%E5%8A%A0%E5%9D%A1%E7%BD%91%E7%AB%99/en/

participating banks in mainland China. The opening of RMB clearing service in Singapore reduced the cost and time of banks and corporations to clear RMB positions, which will in turn encourage the usage of RMB in international trade. Eventually, with the increasing of RMB assets pool, Singapore banks may provide more RMB financial services to residents and nonresidents from other regions, and greatly push the progress of RMB internationalization.Singapore is one step closer to a RMB offshore financial center. I will explain this point in the next section.

Financial regulation system of Singapore

The mission of Monetary Authority of Singapore (MAS) is to "promote sustained and non-inflationary economic growth and a sound and progressive financial services sector"[8]. To achieve this mission, Singapore established a high standard and mature financial supervision system. MAS not only supervises financial intermediaries in Singapore, it also monitors their overseas operations. For foreign banks and insurance firms, MAS cooperates with their home countries to guarantee that they are under solid surveillance by home regulators. As Singapore is small so that it is very effective to enforce any regulation or policy, this makes the capital market in Singapore more efficient.

MAS intends to motivate foreign investors to issue bond in Singapore financial markets. There is no minimum requirement to participate in Singapore debt markets, and no restriction on asset swaps, so that nonresidents can trade Singapore government bond freely in the debt markets. Moreover, Singapore government also established taxation reduction policy to attract nonresidents to participate in its debt markets.

[8] Monetary Authority Annual Report 12/13, http://www.mas.gov.sg/About-MAS/Reporting/Annual-Reports.aspx

According to the “Doing Business Report 2013”, Singapore ranks the top in Asia concerning the ease of doing cross-border trade. This is because of its low cost to import (USD per container) and export (USD per container), and shorter time to import (days) and export (days), compared with Asia & Pacific average level and OECD average level[9]. One reason for this highly efficient trading system may be the regulation system in Singapore, which standardizes the activities of different parties. With renowned high standard of regulations and policies, it will cost more to speculate the trade. In turn, this makes the cross-border trade more smooth and effective.

Meanwhile, the tax and administrative burden in Singapore is much lower than that of the East Asia and Pacific average or the OECD high income average. The lower tax rate and payment frequency per year relieve the financial and administrative burden of companies in Singapore. Hence, many businessesand investments are moving into Singapore. The high penalty on disobedience and money laundering also restrict the probability of conducting financial crimes.

From the analyses above, Singapore is one of the best choice to develop RMB offshore financial services.

[9] “Doing Business, smarter regulations for small and medium-size enterprises”, Singapore Profile. 2013. The International Bank for Reconstruction and Development/The World Bank

Chapter 2 Literature review

The debate considering the RMB internationalization and the capital account convertibility was raisedin the early 2000. Academic discussions started around the same time to analyze the pros and cons of the RMB internationalization and different strategies toward the international currency. Major benefits can be divided into two categories: measurable benefits, such as international seigniorate revenue and financial profits gained from the reservation of the currency; the other is immeasurable benefits (soft power), for instance, the advantages in the international meetings, impacts on the international culture (Chen Yulu, Wang Fang and Yang Ming, 2005). Meanwhile, the major concerns about the RMB internationalization are: the inconvertibility of the capital account of China, the instability of the financial markets of China, especially, the stock and bond markets, and the sustainability of Chinese economy (NivHoresh, 2011). Overall, the academics field agreed that benefits of the RMB internationalization overweighed the potential risks.

Some studies examined the existing strategies for the currency internationalization. Since the internationalization model of GBP and USD require certain economic and social conditions, thus it is difficult to replicate with the RMB. Scholars in China mainly focus on the internationalization approach of Deutsche Mark and Japanese Yen. Based on the comparison of historical background, economic conditions and international situations among China, Germany and Japan, the internationalization approach of Deutsche Mark is more suitable for China. Similar as Deutsche Mark, it would be easier for the RMB to regionalize first and then internationalize. Meanwhile, China should maintain the stability of the RMB exchange rate, and gradually open the capital account(Huang Meibo and Hu Jianmei, 2010; Li Jiandong and An Yao, 2011).

Combining the experience of the internationalization of Deutsche Mark and Japanese Yen, with the condition of China's economy, there are three main stages to realize the RMB internationalization: first, become one of the main settlement currencies in the international trade market; second, become the investment currency in the international financial market, and then become one of the main reserve currencies(Cao Chunjia, 2011).

Hence, regionalization in Asia is supposed to be the short-term target of the RMB internationalization based on literatures. Some studies have been done on the Asia region, especially the Southeast Asia region. Based on the development of China's economy and political power, the following conditions to realize the regionalization of the RMB have been met. First, China and ASEAN are close related and the growth of Chinese economy will benefit both Chian and ASEAN. Second, the good performance of Chinese economy during the Asian financial crisis and the 2008 global financial crisis increases the confidence from Asian countries on China. Third, the RMB has been widely accepted within East Asian countries(Li Xiao, Li Junjiu, and Ding Yibing, 2004). Besides all the possible conditions that can promote the RMB regionalization in East Asian region, China's strategic interests in ASEAN will also promote the economic integration of ASEAN and China, Hong Kong and Taiwan (Yung Chul Park, Chi-Young Song, 2011), which in turn will accelerate the opening of Chinese economy and the RMB regionalization.

Because of the mature conditions and the great benefits of the RMB internationalization, Chinese government is playing a vital role in promoting the RMB internationalization. For example, the establishment of the RMB offshore center in Hong Kong. Many scholars have studied the case of Hong Kong. Hong Kong and mainland China have a close economic relationship. The central government offers favorable policies to help Hong Kong establish the RMB deposit pool, the dim sum bond market and the RMB derivatives. Therefore, Hong Kong becomes the largest RMB trading center outside of mainland China (Hung-Gay Fung, Jr-Ya Wu, &Jot Yau, 2013).

Recently, people started to pay attention to the important role of Singapore in the process of the RMB internationalization. The establishment of the RMB clearing bank in Singapore will reduce market irregularities and settlement risk, thus this will help Singapore become a RMB wealth management hub. (Wong, ChienMi 2012). However, there is still very little literature on this issue. This thesis aims to provide more information on the important role of Singapore in the process of the RMB internationalization.

Chapter 3 The cross-border RMB clearing system

With the inauguration of ICBC as clearing bank in Singapore, investors no longer need to depend on banks in Hong Kong for RMB clearance and settlements. Now Singapore-based banks and banks in other regions can clear their offshore RMB deposits and transactions through ICBC Singapore, which is the first RMB clearing bank outside of China. The service of RMB clearing received a warm welcome from banks and investors. During the first month of its inauguration, as many as 52 banks from Singapore and other countries became its participating banks and settled over 60 billion RMB[10]. For the convenience of settlement in Singapore, DBS Bank Ltd (DBS), HSBC and Standard Chartered all issued RMB bonds in SGX (Singapore Exchange), and settled through ICBC Singapore. Therefore, it is important for us to have an insight of the cross-border RMB clearing system.

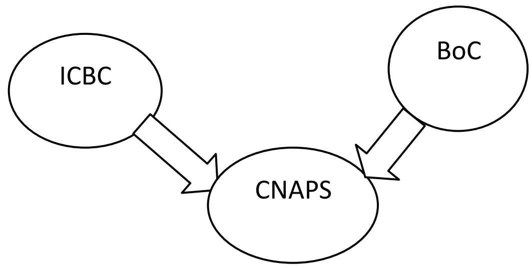
3.1 Definition of clearing bank

Clearing bank is a commercial bank which relies on a settlement network among central bank and commercial banks to settle transactions within banking system for its clients. The process of clearing is to transfer the net amount of money between banks. Take China's bank clearing system as an example, shown in Figure 2. Suppose ICBC (the Industrial and Commercial Bank of China) owes BoC (the Bank of China) 500 million RMB, and BoC owes ICBC 600million RMB. The toal amount of the two-way transactions between the two banks would be 1.1 billion RMB. However, via the

[10] Over RMB 60 Billion Cleared through Yuan Clearing Bank in Singapore in the First Month of Operation, ICBC Singapore, http://www.icbc.com.cn/icbc/newsupdates/icbc%20news/Over%20RMB%2060%20Billion%20Cleared%20through%20Yuan%20Clearing%20Bank%20in%20Singapore%20in%20the%20First%20Month%20of%20Operation.htm

operation of China National Automatic Payment System (CNAPS), the actual transaction in this scenario is only 100 million RMB from BoC to ICBC. Therefore, bank clearing network increases the efficiency and effectiveness of financial system.

Figure2 The CNAPS clearing system



This centralized clearing and settlement system also applied with the cross-border RMB clearing and settlement transactions. The RMB overseas clearing banks have access to the CNAPS in China directly. Thus, by establishing the overseas RMB clearing bank, the RMB positions in Singapore can be timely and efficiently settled through this automatic clearing system.

3.2 Channels and benefits of cross-border RMB clearing

Stated in announcements of People's Bank of China[11], there are three ways to clear and settle cross-border RMB assets, as shown in Figure 3.

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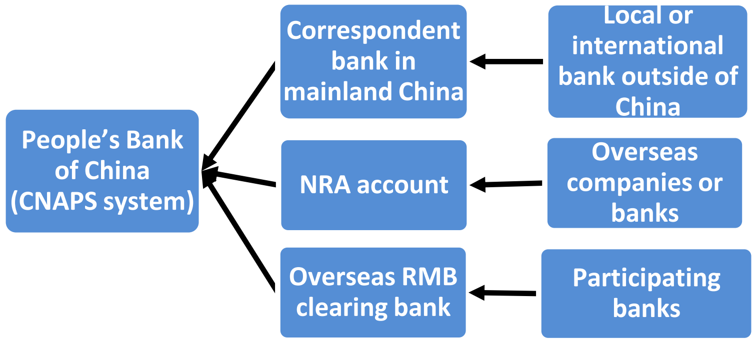
[11] "Introduction of the cross-border RMB clearing and settlement system", 2013-01-08, http://beijing.pbc.gov.cn/publish/beijing/3422/2013/20130108094405917162288/20130108094405917162288_.html

Figure 3 Three channels of cross-border RMB clearing



Note: information collected from People's Bank of China

First channel is through domestic correspondent bank. In this way, outside-border RMB business participating banks send clearing requirements to domestic correspondent banks through Society for Worldwide Interbank FinancialTelecommunications (SWIFT), then correspondent banks finish the settlements using CNAPS.

Second approach is that, companies outside China can open their RMB Non-Resident Account account (NRA account) in domestic banks directly. Hence, company can use this demand deposit account to clear and settle their RMB position in domestic bank clearing system. However, this NRA account is under strict regulation and surveillance of People's Bank of China.

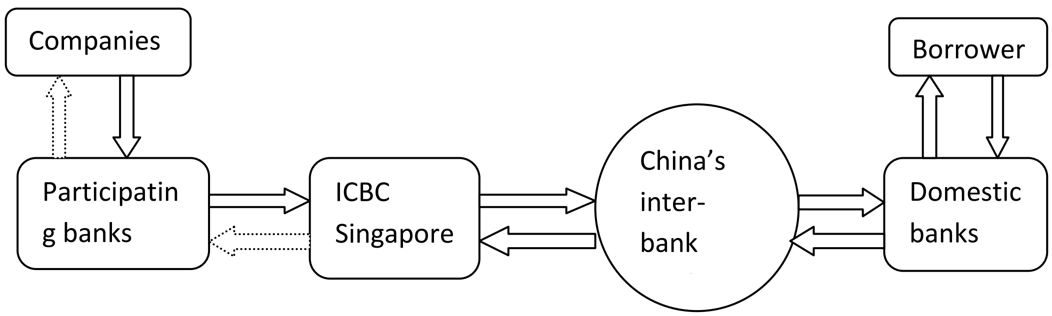
Third approach is through RMB clearing banks outside China. To conduct settlements, outside-border clearing banks should open a RMB clearing account in People's Bank of China and use CNPS to process transaction. Besides, outside-border clearing banks are also allowed to participate in inter-bank foreign exchange market and inter-bank borrowing market, which provide banks more investment choices and can help banks balance their accounts easier.

Taking ICBC Singapore as an example, the main advantages of the third clearing bank channel are as follows.

1. Both Singapore-based banks and banks in other regions can conduct RMB settlement and clearing in Singapore through ICBC Singapore. This implies that through the branches of ICBC in ASEAN, Singapore can cover most countries in ASEAN, which will significantly increase the RMB denominated payments in international trade and international financial markets.
2. Through ICBC Singapore, participating banks in Singapore can access to the interbank market in China. Furthermore, the RMB position of ICBC Singapore can also trade in the interbank foreign exchange market and the interbank money market which will provide timely and abundant RMB liquidity for the participating banks in Singapore.
3. The RMB account opened in ICBC Singapore is an offshore RMB account which is covered by Singapore regulation system. In comparison, the RMB account opened in corresponding banks in mainland China or the NRA account is the onshore RMB special account for cross-border transaction proceeds. The regulation and surveillance of the latter is more stringent than that of the offshore RMB account, even though the RMB account is regulated by the People's Bank of China when it flows into China through the ICBC Singapore. The amount and transaction times are controlled by the People's Bank of China. This will limit the availibility and liquidity of RMB, and will make investors difficult to invest in the financial markets in mainland China.
4. Compare to NRA account, the opportunity cost of clearing through ICBC Singapore is much lower. If a company opens an NRA account in mainland China, the RMB

deposit in that account can only be used for trade settlement transaction and is difficult to transfer out of China. In addition, the operation fee is higher than that of clearing bank RMB account, and it is more time consuming to go through all the administrative procedures through NRA account. Many overseas banks are not willing to open such NRA account in China. The ICBC Singapore is a significant addition for overseas banks to clear and settle RMB positions efficiently.

Figure 4 RMB flows through clearing bank



Since there is RMB clearing bank in Singapore now, clients of participating banks can settle directly through ICBC Singapore. As revealed in Figure 4, through China's inter-bank market, it is possible that participating banks or domestic banks gain surplus RMB positions. If Singapore participating banks gain 100 million positive positions in the inter-bank markets in mainland China, then they can use this amount to invest in loan markets or investment projects in Singapore to make profits.

3.3 Development of the RMB clearing bank in Singapore

The rapid development of ICBC Singapore confirms the importance of the RMB offshore market in Singapore and neighboring countries. In 2013, calculated by ICBC Singapore, among all the RMB transaction conducted through ICBC Singapore, the foreign exchange transaction volume was 60 billion RMB, the RMB financing volume was 140 billion RMB, and the cross-border RMB settlement volume was 150 billion

RMB[12]. Besides the remarkably growth in the total transaction volume, the daily RMB clearing value also increased. The maximum daily clearing value was 80 billion RMB, which is 20 billion more than that of the first working day of the clearing bank. ICBC Singapore provides many RMB denominated financial services to companies in the neighboring countries. At the same time, ICBC Singapore sets up a team especially for RMB clearing services and the RMB denominated products innovation. This professional RMB service can provide RMB settlement support to more companies in ASEAN accept RMB when they would like to trade in RMB or invest in RMB denominated financial products.

Table 3 Development of the RMB services in ICBC Singapore

	RMB clearing(bn)	Participating banks	Services
20130627	Over 60	52	RMB clearing under current account Offshore clearing with HK market Fixed rate deposit Clearing for the RMB-denominated bonds
20140103	2600	67	Cross-border RMB loans RMB FDI Connect with Shanghai free-trade zone and other economic zones in China

Note: information was found on the website of ICBC, http://www.icbc-ltd.com/icbcltd/about%20us/news/rmb%20clearing%20amount%20of%20icbc%20singapore%20branch%20reached%20rmb2.6%20trillion.htm

[12] RMB Clearing Amount of ICBC Singapore Branch Reached RMB2.6 Trillion, ICBC News, http://www.icbc-ltd.com/icbcltd/about%20us/news/rmb%20clearing%20amount%20of%20icbc%20singapore%20branch%20reached%20rmb2.6%20trillion.htm

From the above Table 3, we can conclude that the ICBC Singapore experienced a sharply increment in its RMB clearing business, which rised from 60 billion RMB on June, 2013 to 2600 billion RMB on January, 2014. This unexpected growth may due to the broader service area of ICBC ASEAN, the growth of China-ASEAN cross-border trade, and the diverse RMB investment products provided by ICBC Singapore. Despite of the traditional RMB business, as shown in the Table, ICBC Singapore offers financial services to help overseas companies as well as Chinese companies build a closer connection with Shanghai Free Trade Zone and other special economic zones in China. Thus, Singapore through the RMB clearing bank in Singapore, become the bridge between mainland China and neighboring regions. This is a unique advantage for Singapore to develop its RMB offshore market.

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Chapter 4 The RMB offshore market in Singapore and ASEAN

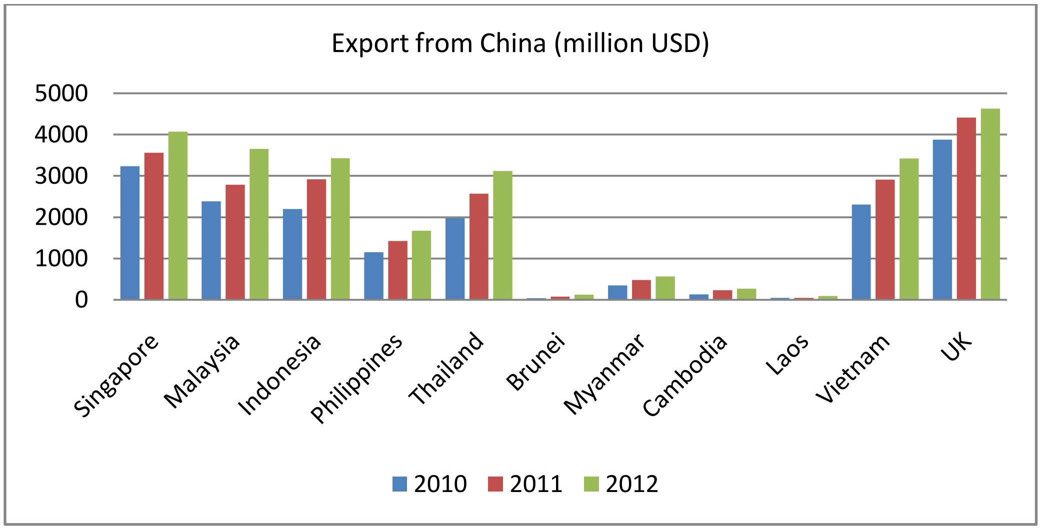
4.1 The RMB in ASEAN-used as settlement currency

It is suggested in the literatures that RMB should be regionalized in Asia, especially in ASEAN before being internationalized. From the trade relationship between China and ASEAN countries, it is reasonable to say that ASEAN will play the most important role in the RMB regionalization procedure.

China and ASEAN found the China-ASEAN Free Trade Area (CAFTA) in 2010, which aims at promoting regional cross-border trade and build up a tariff free trade zone eventually. After the establishment of CAFTA, over 90% of goods traded between China and ASEAN are tariff free. The trade between China and ASEAN kept growing in the last 10 years. ASEAN has been the third largest trading partner of China for 3 years since it overtook Japan in 2011. In particular, ASEAN, exceeded European Union, became the third trading partner of Guangdong province in 2013. From ASEAN's perspective, China has been ASEAN's largest trading partner since 2009[13]. These facts indicate a continuously increased trade volume between China and ASEAN. According to SWIFT RMB monthly tracker, the RMB is currently the eighth trade payment currency in the international trade market and most RMB settlement took place in Asia. Based on this ranking, if the China-ASEAN integration of free trade realized in 2015, the RMB will surely be a major trade settlement currency in ASEAN.

[13] ASEAN-CHINA Dialogue Relations, Association of Southeast Asian Nations, http://www.asean.org/news/item/asean-china-dialogue-relations

Figure 5 Export value of China and counterpart counties



Note: data collected from China Statistics Book

As shown in Table 4, ASEAN experienced a faster growth rate than Europe in terms of trade value with mainland China. Table 4 and Figure 5 show evidence that potential RMB market in ASEAN is larger than that in Europe. Indonesia and Myanmar experienced a rocked growth in trade value with China, which is almost double of that of UK. This indicates that the potential markets in ASEAN countries are very large, and there is an increasing need of RMB in regional trade within ASEAN countries.

4.2 The RMB in Singapore-used as investment currency

The offshore RMB financial markets are growing rapidly in ASEAN. The first RMB denominated stock was issued on August, 2013. There are usually four ways of corporate financing: bank loans, debt markets, stock markets, and private loans. In case of mainland China, banks prefer to loan money to large companies or state-owned enterprises (SOEs), which have low default risk because of awhich have low default risk because of strong profitability or government guarantee. For large companies, they can also issue bonds in the debt market to get resources. Emerging or small firms are harder to finance themselves through the first two approaches. They more often finance through private loans, for instance, venture capital or personal connections. When the companies grow larger, most of them go through IPO to gain more capital.

4.2.1 The RMB stock market

In November, 2013, MAS and People's Bank of China had decided to work together to encourage Chinese companies to issue their shares in Singapore. This is a milestone for both countries. Currency, there are only USD, SGD, and AUD denominated stocks in SGX. The RMB denominated stock will increase the investment portfolio to meet various demands. From Table 5, we can see that only three RMB denominated stocks are traded in the offshore RMB market now. The first one was issued in 2011, while, the latest one was listed in SGX in 2013. Yangzijiang Shipbuilding stock was initially traded in SGD in the Singapore Exchange. However, as the RMB is gradually accepted regionally and many investors in mainland China, Hong Kong and other regions would like to trade the share in RMBto, avoid exchange risk and transaction costs in the currency exchange. From this perspective, we would expect more companies to list their shares in RMB denomination or in dual currencies. In order to help the RMB denominated stock market grows well, the MAS and People's Bank of China should cooperate to shorten the application process, lower the cost and enforce the supervision of the stock market.

Table 5 The RMB denominated stocks in offshore market

Company	Exchange	Stock price	Issue time	Corporate info
Hopewell Highway Infrastructure	Hong Kong	CNY3.22	10/29/12	Wanchai,Hong Kong
Hui Xian Reit	Hong Kong	CNY5.24	04/29/2011	Hong Kong
Yangzijiang Shipbuilding	SGX	___	08/05/2013	Jiangyin,China

Note: data collected from Bloomberg, January 2014. NUS Bloomberg Terminal.

4.2.2 The RMB loan market

The RMB loan market is another majoroffshore RMB financial market. Except issuing stocks, bank loans are a major source of corporate financing. In this subsection, I will introduce the commercial loan in Singapore using the case of OCBC bank, and the official RMB loans provided by MAS. Thereafter, I would like to compare the financing costs in mainland China and Singapore, to show that the lower financing costs in Singapore will attract more and more companies, especially those in mainland China, to participate in the loan market in Singapore. Therefore, Singapore is a good alternative financing market for corporations in mainland China, and a major RMB liquidity supply for the nearby regions.

Commercial loans in Singapore

For mortgage loan, borrower can get up to 80% of the total value of the collateral and enjoy an average 1.3% annual interest rate for the first year. For business loans, OCBC even offers collateral free loans for three types of corporations.

Table 6 Commercial loans in Singapore-OCBC

Mortgage (SGD)			Collateral free loans (SGD)		
Short-term fixed interest rates	Variable interest rate	SIBOR – dependent rates	Micro Loan	Business Term Loan	Business Smart Credit
1.68%-1.78% for the first year	1.18%-1.38% for the first year	SIBOR+0.9% or the first year	Up to 100,000SGD Repayment up to 4 years	Up to 500,000SGD Repayment up to 5 years	Up to 200,000SGD Pay interest on the amount used

Note: data collected from OCBC website; SIBOR refers to the Singapore Interbank Offered Rate.

OCBC provides collateral free loans to different developing stages companies, as shown in Table 6. For the startup, the maximum loan can reach 100,000 SGD. For the mature business, a company is entitled a maximum 200,000 SGD loan and only pay interest on the amount it used. This kind of loan can be accessed through the business smart credit card and the company can make payments anywhere at anytime.

Since the RMB pool is developing very fast after the inauguration of RMB clearing bank in April, 2013. Individuals and firms are allowed to borrow RMB loans from banks now and the interest rate is similar to the SGD denominated interest rate.

Singapore official RMB loans

Besides banking loans, the Singapore government also provides an official RMB lending facility. The MAS (Monetary Authority of Singapore) RMB Facility is a foreign currency lending facility that allows eligible counterparties to borrow RMB funds, under the currency swap arrangement. This RMB facility aims to “promote bilateral trade with and direct investment into China and enhance financial stability in the offshore RMB market in Singapore" (MAS website). As seen in Table 7, the RMB facilityprovides RMB loans based on the use of the loan. If the company uses this RMB fund for trade settlement, the tenor will be 3 months. Otherwise, the tenor will shorten into one week or one month. In terms of the lending rate, the MAS RMB facility program will based on the SHIBOR (Shanghai Interbank Offering Rate) of mainland China, which is around 3%. However, the lending rate in mainland China is around 6% since 2012, as shown in Figure 8. This 3% RMB lending rate in Singapore indicates a large gap of the RMB loans interest rate between Singapore and mainland China.

Table 7 MAS RMB Facility

Tenor	For trade purposes 3 months, rollover possible. For market stability purposes 1 week or 1 month.
Rate	For RMB loan transaction Shanghai interbank offered rate ("SHIBOR") of a corresponding tenor

Note: information collected from MAS, http://www.mas.gov.sg/monetary-policy-and-economics/central-bank-operations-and-liquidity-management/mas-rmb-facility.aspx

Hence, it is obvious that the government in Singapore is supporting the RMB regionalization by providing RMB liquidities, encouraging companies to trade with or invest in China using RMB as the settlement currency. This settlement currency function is the first step towards an international currency. The effective support from central governments of ASEAN countries is a great advantage for RMB to become a regional currency in ASEAN.

The interest rate in Hong Kong, Singapore and mainland China

Based on the above description, we have a rough picture about the lending rate in Singapore. The commercial loan interest rate is relatively low compare to that in mainland China. If China would like to encourage more investors to settle their international trade positions in RMB or invest in RMB denominated financial products, the financing costs in Singapore should be attractive to most investors and corporations.Since corporate financing usually include bank finance, debt finance, equity finance and other types. In the previous part, I described the RMB stock market in Singapore and Hong Kong. We can see that the RMB offshore stock market is still very small and only three companies issued their RMB denominated stocks in Hong Kong or Singapore.

From the Table 6 for commercial lending rates, it is very cheap to get bank loans in Singapore at an average rate around 1.3% for the first year. The interest rate in the subsequent years are also substantially lower in Singapore than those in China. This lending rate level is similar to that of Hong Kong, but show a big gap with China's banking loan interest rates. Thereafter, it is important that we compare the lending rate of these three jurisdictions to justify the interest gap of RMB loans. If there are large interest rate gaps among the three economies, it will creat arbitrage opportunities of interest rate[14].

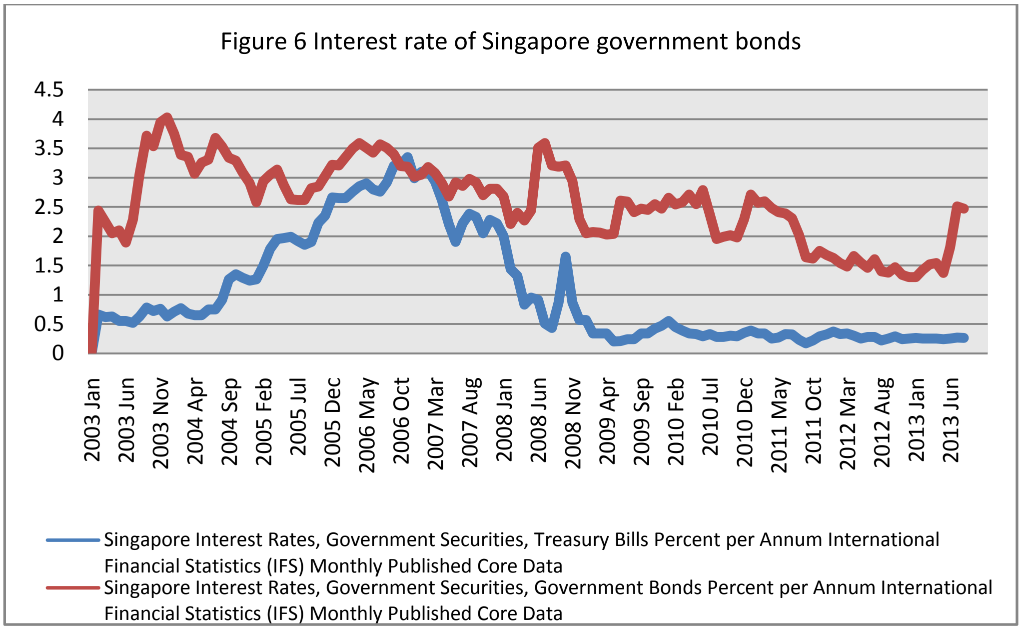
I will start the analysis of the loan market in Singapore by comparing the government Treasury bill and government bond interest rate between Hong Kong and Singapore.

[14] Interest rate arbitrage actually happened in the Hong Kong RMB market, and I will explain the mechanism in detail in the last section of this thesis.

1. Risk-free rate in Hong Kong and Singapore

Risk-free interest rate is the rate of return of an investment without risk of loss. Normally, the risk-free rate is the criteria above which investors will hold other market portfolio. For example, the deposit rate in China is now 3%, investors won't hold market portfolio that yields a rate of return less than 3%, otherwise, they can just save the money into banks and gain risk-free returns. Since the governmentTreasury bill data is discrete and is not found in the international financial statistics database neither, in order to keep the data source consistent and comparable, I will focus on the comparison of the Treasury bill rate in Hong Kong and Singapore in this part.

However, in reality, there is no investment tool that is absolutely risk free. Investors often use some proxies for risk-free rate, such as short-term government bonds, inter-bank lending rate. In Hong Kong and Singapore, government securities are issued continuously so that the interest rate of government security treasury can be used as a proxy for risk-free interest rate; while in mainland China, government securities are not issued continuously. As shown in Figure 6, the interest rate of Singapore government bonds is consecutive and is determined by the market. Government treasury bills are short-term government bonds, so it is natural that the interest rate of government bonds in Singapore is higher than that of government treasury bills.



Note: data collected from international financial statistics (IFS), updated by 2nd Sep. 2013

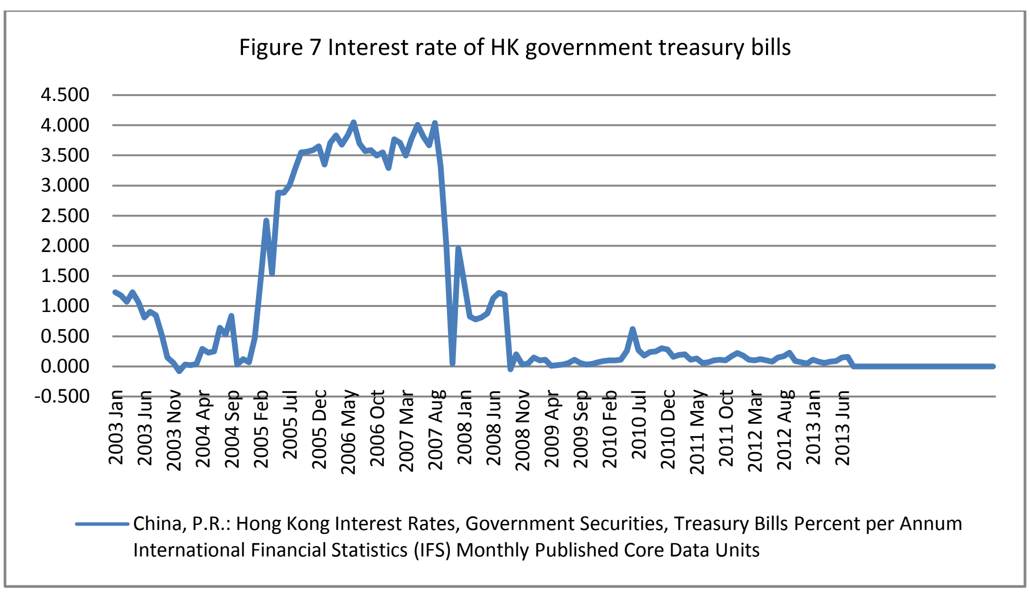
From Figure 6 and Figure 7, it is obvious that interest rate of government treasury bills is more consistent with global financial conditions, since both Hong Kong and Singapore government treasury bills market experienced a boom during the year of 2006 and 2007, then dropped rapidly with the financial crisis in 2008.

As shown in Figure 7, the government Treasury bill rate increased dramatically from nearly zero up to four percent, from January, 2005 to November, 2007. When the subprime mortgage crisis started in the end of 2007, the government Treasury bill rate in Hong Kong dropped to one percent in the early 2008. When the situation became worse in September, 2008, the government Treasury bill rate fell to the low level before 2005. After that, the bill rate has been staying at a virtually zero level.

Comparing the Treasury bill rate in Hong Kong and Singapore, it is obvious that both rates are moving with the international financial markets and are reliable reflection of financial market conditions. Furthermore, the sovereign credit ratings of Hong Kong and

Singapore are both AAA by Standard and Poor's (S&P), which represents a low default risk. Hence, the Treasury bill rate in Hong Kong and Singapore can be seen as the risk-free rate for financial markets in Hong Kong and Singapore. When comparing the financing costs in Hong Kong and Singapore, this risk-free rate can provide a benchmark for the financing cost analysis. As shown in these two Figures, the Treasury bill rates in Hong Kong and Singapore are similar and both are close to zero. This means that the major financing costs for corporations to raise money in these two markets is the market risk premium, such as default risk, business operation risk, repayment risk, exchange risk, and credit risk.

Therefore, when investors finance their business in the financial market in Hong Kong or Singapore, the risk-free rate is almost the same. Hence, the major concern on the financing costs is the risk premium factor and the access to bank loans and the lending rate of banks. I will explain this bank lending rate in the following part.



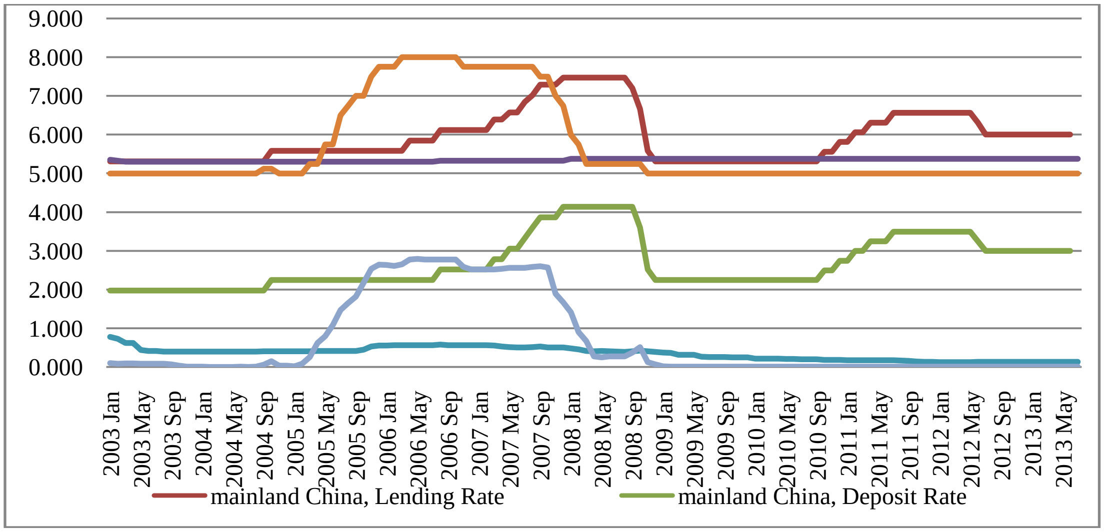
Note: data collected from international financial statistics (IFS), updated by 2nd Sep. 2013

2. Bank lending and deposit rate in mainland China, Hong Kong and Singapore

As can be seen in Figure 8, the interest rate gap between deposits and lending in mainland China has been stabilized around 3% for nearly 20 years. This situation results from the monetary policy of the People's Bank of China. These policies make firms difficult to obtain enough capital, not only because of high lending rates, but also because of the limited lending quota. Therefore, many mainland companies prefer to issue bonds in Hong Kong (the "Dim Sum Bond"), Singapore or IPO in overseas market to raise capitals. Therefore, if the interest rate in Singapore is lower than that of mainland China, or even that of Hong Kong, Singapore will attract

Compared with the lending and deposit rate in mainland China, the interest rate in Hong Kong and Singapore aregenerally lower. The lending rate in Hong Kong and Singapore are around 5%, whereas the lending rate in mainland China is above 6%. This means that there exist an interest rate gap and once Singapore banks are able to provide RMB loans, many Chinese companies will apply for bank loans in Singapore. This interest rate gap is one of the sources of fake trade arbitrage, which I will explain in the last section. Overall, the loan market in Singapore is very attractive to mainland companies. In addition, since the ASEAN region has a lot of RMB deposit, and the interest rate is similar to that of Hong Kong, many investors in Hong Kong may also willing to participate in the lending market in Singapore. Therefore, the RMB deposit in Singapore will flow in the offshore market and attract more investor to invest in RMB denominated financial products. Hence, the RMB is moving near to its second step of internationalization, which is as a major investment currency.

Figure 8 Comparison of interest rates in mainland China, Hong Kong and Singapore



Note: data collected from international financial statistics (IFS), updated by 2nd Sep. 2013

4.2.3 The RMB bond market in Singapore

Except London, Singapore has also issued RMB bonds, which gained warm welcome in the financial market. The practice of RMB bonds in Singapore implies the urgent needs of RMB in Asian countries and investors.

Singapore's biggest commercial bank, DBS, issued 500million fixed rate RMB bonds which due on 7 June, 2016, on 7 June, 2013[15]. These RMB bonds received a warm welcome from various interest parties, and gained an order book of around RMB 2 billion.

As can be seen in Figure 9 and Figure 10, Hong Kong investors occupied more than half of the total amount of these RMB bonds, indicating that the RMB bonds volume in Hong Kong is not sufficient, Singapore as another RMB center is required. Meanwhile,

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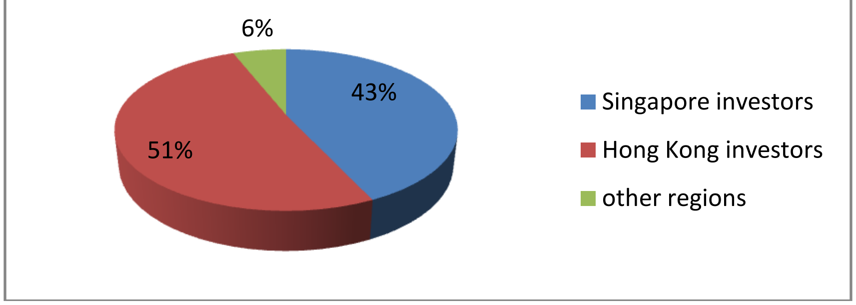
[15] Newsroom, DBS Website, http://www.dbs.com/newsroom/newsreleases/default.aspx?NewsID=544&Country=All

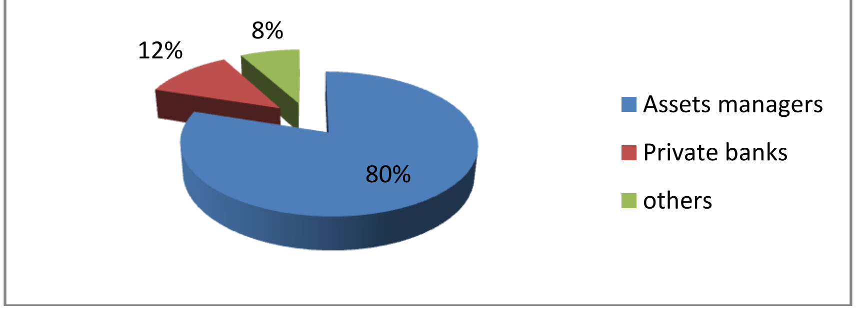
global asset managers showed great interest in RMB bonds, may because that Chinese economy keeps rapid growing and the appreciation of RMB.

Figure 9 Regional allocation of RMB bond



Note: data collected from DBS website, http://www.dbs.com/newsroom/newsreleases/default.aspx?NewsID=544&Country=All

Figure 10 Allocation of RMB bond among various investors



Note: data collected from DBS website, http://www.dbs.com/newsroom/newsreleases/default.aspx?NewsID=544&Country=All

These cases show that issuing RMB bonds is feasible and welcome in East Asia, especially in ASEAN countries, and Singapore has the strength of playing the role of RMB center in Southeast Asia.Since the RMB denominated bond market in Singapore is developing rapidly, I would like to analyze the existing RMB bond listed in SGX for more information.

Data description

Data collection: data sample was collected from Bloomberg databases, and updated to 10th Jan, 2014. When searching for the bond listed in Singapore, I only controlled the denominated currency as CNY, other variables as randomly selected by the Bloomberg system. We would assume this data set is randomly picked. Compared with the total RMB number listed in SGX announced by Liang Xinsong on September, 2013, which is around 84, my data set includes 72 RMB bonds. Thus, this data set can be seen as a good representative of the RMB bond market in Singapore.In the data sample, there exist two kinds of RMB bonds: one is ordinary bond; the other is convertible bond, which can denominate both in RMB and USD or can be converting into corporation stocks. I will explain the basic information of ordinary RMB bond first and then describe the convertible RMB bond.

The following Tables show the description of the data sample of the ordinary RMB bond. The first line is the number of RMB bonds only listed in SGX (Singapore Exchange). The second line is the number of RMB bonds only listed in London. These bonds listed in London were found in the random list of RMB bonds in Bloomberg system. The last line represents the RMB bonds listed in Singapore and other exchanges or London and other exchanges in the international financial markets.

Table 8(a) Sample description

Exchange	Number of bonds
Only SGX	41
Only London	8
Multiple	25
Total	74

Note: original data from Bloomberg

Table 8 (b) Sample descriptions

Exchange	Industry		Percentage	Average coupon
SGX-ST	Banking	14	34.15%	3.29%
	Real Estate	11	26.83%	7.42%
London	Banking	7	87.5%	3.04%
Multiple	Banking	5	19.23%	3.99%
	Real Estate	2	7.69%	8.38%

Note: original data from Bloomberg

Table 8 (c) Sample description

Exchange	AU	BM	CN	GB	IN	HK	JNP	KR	KY	MY	SG	VG
SGX	1	4	4	1	4	10		7	16	1	6	9
London				8			1		2			
Total	1	4	4	9	4	10	1	7	18	1	6	9

Note: original data from Bloomberg

Table 8 describes the industry categories and average coupon for the ordinary RMB bonds in the sample data. Overall, the coupon rate for RMB bonds issued by banks is half of that issued by real estate companies. Only around 34% of the issuers of which the RMB bond is listed in SGX belong to the banking industry, whereas, over 85% of the issuers which listed their RMB bonds in London are in banking industry. This clearly shows an industry centralization of the issuers in the London's RMB offshore bond market. In terms of the total number of RMB bonds in the three categories, the number of RMB bonds listed in SGX is almost five times of that listed in London. This fact indicates that banks and real estate companies are the majority of the offshore RMB bond issuers. Another character of the RMB bond listed in SGX is the country of issuer. As shown in Table 8 (c), there are many countries or jurisdictions issue RMB bond in

Singapore, including mainland China, Hong Kong, Cayman Islands, Malaysia and so on. Although issuers from Hong Kong and tax havens occupy a significant proportion in all the countries of issuers, there are many issuers from neighboring countries, such Korea, Malaysia, Australia, India and six Singapore local issuers. This fact reflects that the RMB is widely accepted as an investment currency is the Asian region. Thus, the RMB is moving fast towards its regionalization in Asian through the RMB financial market in Singapore.

Since I will focus on the ordinary RMB bond in the following analysis, the information on convertible RMB bonds are listed in Table 9 in the appendices.

Summary of coupon and tenor information of RMB bonds

After describing the data sample, I will compare the coupon rate of the RMB bond in Singapore and that listed in Hong Kong. As can be seen in Table 10 and Table 11, the RMB bond in Singapore have various maturities, from two years to ten years. Among all the maturities, three-year bonds occupy 68% of the total number of bonds, which is the same for the bonds listed in Hong Kong. This indicates a preference of RMB-bond issuers. The average coupon rate is similar with that of bonds listed in Hong Kong, as summarized in Table 11. Excluding the extreme coupon rate for bonds both listed in Singapore and Hong Kong, the coupon rate gap for the bonds seems to be very small. This indicates that only consider coupon rate, it is the same for companies to issue bond in Hong Kong or in Singapore. The RMB bond market in Hong Kong has developed for 6 years, while the RMB bond market is emerging. The fast development of this RMB bond market in Singapore will attract more and more companies and investors from the mainland China, Hong Kong, as well as those in the neighboring regions.

Table 10 Summary of RMB bonds listed in SGX

Summary of bonds listed in SGX					
Tenor	Issue date	Number of bonds	Highest	Lowest coupon	Average coupon
2	07/2012-11/2013	6	8.5	2.25	4.28
3	01/2011-12/2013	43	11.5	0.9	5.23
4	01/26/2011	1	7.625	7.625	7.625
5	11/2010-11/2013	9	10.5	0.75	5.32
7	05/11/2011	1	4	4	4
10	11/2011-11/2013	3	6	4.5	5.02

Note: original data from Bloomberg

Table 11 Coupon rates of RMB bonds listed in Hong Kong

Tenor and issue date		Highest coupon	Lowest coupon	Average coupon
2 years	2011-2012	9.00	0.63	3.44
3 years	2011-2012	11.50	1.10	4.45
5 years	2011-2012	10.50	1.4	4.61
7 years	2011-2012	4.00	3.95	3.98
10 years	2011-2012	5.3	4.5	5.0
15 years	2011-2012	4.8	4.8	4.8

Noted: Quoted from Zhou Ruanfan, Offshore RMB Bonds (Hong Kong), 2013[16]

The Use of proceeds of the RMB bond listed in SGX

Since the first RMB bond issued by the Development Bank of China in Hong Kong in 2007, the RMB offshore market in Hong Kong started to grow rapidly, especially, after the year of 2010. Many mainland companies issue RMB denominated bonds in Hong Kong, namely the “Dim Sum Bond”. However, there is one concern that the use of proceeds of the RMB fund raised in Hong Kong. When we compare the use of proceeds

[16] Zhou Yuanfan. Offshore RMB Bond (Hong Kong). Published by CITIC Publishing Group, March 2013

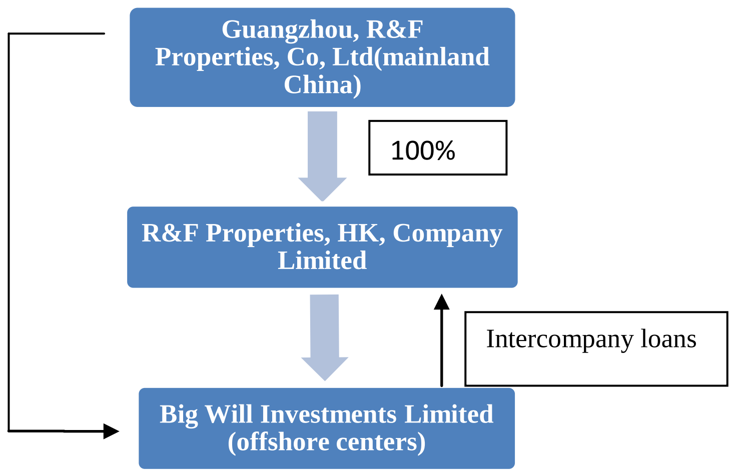
of the RMB bonds issued in Hong Kong and in Singapore, most of the RMB raised in Hong Kong flow back to mainland China, however, the information of RMB bonds issued in Singapore provide some new trends.

As can be seen in Table 12, there are three trends of the use of proceeds of RMB bonds listed in Singapore. Firstly, although some companies still transfer the offshore RMB into mainland China, they tend to use the money in manufacturing, and infrastructure in some provinces in China, for instance, Hebei, Jiangxi, Shanxi and western part of China. This kind of investment will benefit the local governments, help them improve social output and working conditions, and stimulate the economy growth of these provinces. Secondly, some companies, like Hainan Airline HK, state clearly that they will use the RMB fund to expand their offshore business. This is a big step towards the investment currency perspective of the RMB internationalization. Third, the Export-Import Bank of Korea issued five RMB bonds in SGX. The first RMB bond issued by the Export-Import Bank of Korea was issued in Nov, 2010, and the latest one was issued in Nov, 2013. Moreover, this government development bank in Korea issued two RMB bonds in SGX in 2013. Above data indicate that the RMB demand in Korea for trade settlement or business development is increasing. This means that RMB is gradually accepted by the neighboring countries as a trade settlement currency, as well as an investment currency to raise funds.

Another significant phenomenon in the data sample is that majority of real estate companies raise RMB funds in offshore market and transfer the fund into mainland China to repay their existing onshore bank loans or debts. This kind of use of proceeds is very common in the Hong Kong RMB bond market. However, the capital flow in mainland China is strictly regulated. A question of how could they transfer the fund into mainland

China has been raised. The following Figure will illustrate the answer. For example, this Figure explains the case of Guangzhou R&F Properties Co., Ltd.

Figure 11 The procedure for offshore RMB to flow into mainland China



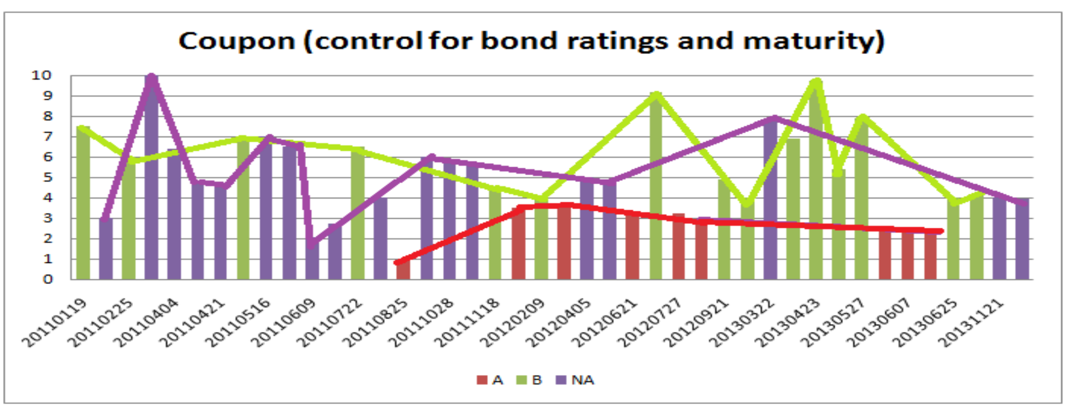
Note: information collected from 2011 Big Will CNY bond offering memorandum

Figure 11 vividly illustrates the overall procedure for real estate companies to raise RMB fund in the offshore market and transfer the money back into mainland China. First, the Guangzhou R&F Properties in mainland China establish a wholly-owned subsidiary in Hong Kong. Then, the subsidiary in Hong Kong establish a financing vehicle in the form of a financial services or a real estate company in offshore financial centers, for example, Cayman Island, Bermuda, and Virgin Islands. Third, the vehicle, under the guarantee of the parent company, issues RMB bonds in offshore markets, such as Hong Kong, Singapore, and London. After raising money by the RMB bonds, the vehicle can lend this amount back to the subsidiary in Hong Kong in terms of intercompany loans. After the fund received by the Hong Kong subsidiary, the parent company in mainland China can use the money to repay its onshore bank loans or debts, purchase new land or construct new real estate projects. This is because the subsidiary is wholly-own by the parent company. In this way, offshore RMB funds flow back to mainland China and invest in the real estate market, thus making the housing price increasing and the market bubble bigger and bigger. If the capital flow suddenly breaks down, the company will have very limited access to raise fund in offshore market and repay its existing debt. This will lead to bankrupt of real estate companies in the end. Furthermore, when many companies default or bankrupt, the bubble in the property market will explode, and the whole financial system and China's economy will collapse.

From this process Figure, the most important step is the intercompany loans. Since the capital flow into and out of mainland China is still strictly controlled, a company will have difficulty to transfer the offshore RMB fund back to mainland China without using the intercompany loan. Therefore, the People's Bank of China should have more specific regulation on cross-border intercompany loans, on which People's Bank of China currently only give general regulation and overall supervision. The specific regulations may include, but not restrict to, the company should clarify the source of the fund and its use of proceeds in mainland China. In order to restrict over-investment in real estate market, lower the housing price, and maintain a healthy and safer economy environment.

The relation between offshore RMB coupon rates and onshore market interest rate

Figure 12 The coupon rate of RMB bond listed in Singapore



Note: original data from Bloomberg

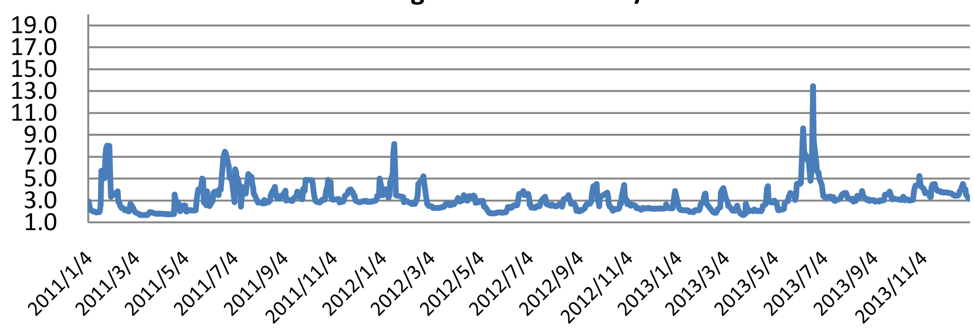
Figure 12 shows the coupon rate for all the three-year RMB bonds issued in SGX (Singapore Exchange), including those only listed in SGX and those listed in multiple exchanges, at different credit rating levels. Because those different credit rating agencies give different ratings, and it is hard to compare, the above ratings are Bloomberg Composite Ratings. This rating is the average mean of the rating scores issued by S&P, Moody's, Fitch and DBRS (Dominion Bond Rating Service, based in Canada). If there are less than or include two rating scores, the Bloomberg composite will state "NR" for that bond. If all the four rating agencies do not give ratings for that bond, its rating will be "NA", which means not available or not required for ratings. Here, since the data set is limited, if a RMB bond is rated only by one or two agencies among the four rating agencies, I will count the corresponding rating score. For instance, ADCB Finances Cayman Ltd only has Fitch's bond rating as A+, and the Bloomberg composite rating for this bond is NR. In this case, I will count this bond as rating A. Therefore, the three different colors in Figure 12 represent three different bond rating levels. The red line represents those RMB bonds which are rated A. The green line and the purple line represent bond rating level B and "NA", respectively. Among these three-year RMB denominated bond listed in SGX, 18 of them are do not have ratings, 15 of them have B level ratings, only the rest nine bonds have A level ratings.

It is also shown in Figure12 that the coupon rate has a large fluctuation in the sample period. When comparing the coupon rate with the SHIBOR (Shanghai Interbank Offering Rate) and SIBOR (Singapore Interbank Offered Rate) for the same period, we can see that there may be a lagged correlation between the coupon rate of offshore RMB bonds listed in Singapore and the SHIBOR in mainland China. However, the correlation between the offshore RMB coupon rate and the SIBOR seems to be non significant.

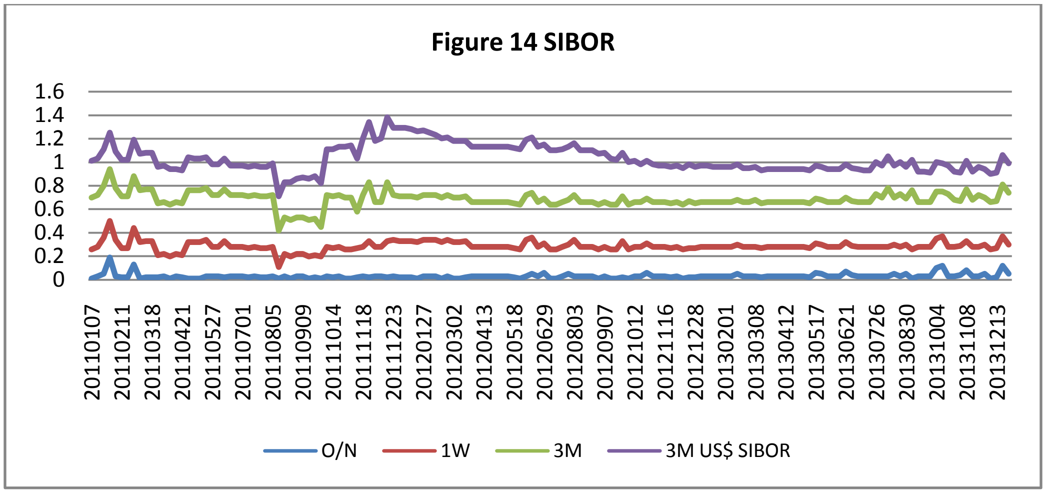
However, due to data availability, the statistical test for such correlation is not applied. If we treat the data as time series, the result will have autocorrelation. Therefore, the statistical test on the relationship between offshore RMB coupon rate and the onshore market rate will be left for further study.

When we look at Figure 12 and Table 15 more specifically, relationship between coupon rate and bond ratings is clearly shown. Control the tenor, bond ratings, two bonds both issued in May, 2013, have different coupon rate. The lower rating bond has a higher coupon rate. And as shown in Figure 12, bonds with higher level ratings tend to have lower coupon rate. Thus, there is a negative correlation between bond ratings and coupon rate.

Figure 13 SHIBOR O/N



Note: data collected from SHIBOR website, http://www.shibor.org/shibor/web/html/index_e.html



Note: data collected from MAS, https://secure.mas.gov.sg/dir/domesticinterestrates.aspx

Summary of the RMB denominated bond listed in SGX:

1. China's government may have more specific regulation on cross-border intercompany loans, in order to restrict the capital flow into real estate market in China.

2. The offshore RMB coupon rate is more relevant to the SHIBOR rate than to the SIBOR rate.

3. The data used in Figure 12 have same maturity, issued in the same month, thus I assume the systematic risk is the same. The premium may comes from corporate risk, industry risk or other specific risks.

Summary of the RMB market in Singapore

1. The sizes of issuers in SGX are very diverse, from big to middle size corporations.The industry ofissuers in SGX is more diverse than that in London: wire line services, logistics, food, real estate, renewable energy, metals & mining, life insurance. While over 85% are banking in London.The country where the issuer located is also very diverse in SGX: tax havens as well as neighboring countries. This

shows that RMB is gradually accepted by companies in the Asian countries as an investment instrument.

2. RMB products are increasing, RMB deposit, loans, FX, Futures, and securities.
3. Use of proceeds shows some trends of the RMB funds. First, companies start to use RMB outside of China. Secondly, real estate companies set subsidiaries in tax havens to raise RMB in order to repay their onshore loans or invest in property. Thirdly,some companies use the RMB fund to invest in the real economy, for example, CCB invest in infrastructure or manufacture in middle and east of China, which will benefit the local economy.
4. Central banks of the neighboring countries start using RMB as a foreign reserve currency and support RMB-denominated cross-border trades.

In conclusion, the offshore RMB market in Singapore is developing rapidly. With the support of Central government of China and Singapore, Singapore will become a RMB offshore center like Hong Kong, which has a large RMB deposit pool and an active offshore RMB financial market. However, when the offshore RMB business grows fast, there may be some problems, such trade arbitrage. The arbitrage using fake trade can neither improve the social welfare, nor promote the RMB internationalization. Hence, we should pay attention to this problem and take actions to limit such arbitrage. I will explain the details in the next section.

Chapter 5 The arbitrage between Hong Kong and mainland China

5.1 The development of the RMB market in Hong Kong

In order to promote the usage of RMB in the international financial markets, the Chinese government has to choose some efficient international financial centers to establish offshore RMB markets. Hong Kong is one of the suitable choices. Compared with the domestic financial center, Shanghai, Hong Kong is more efficent in some aspects, such as the Real Time Gross Settlement Systems, less additional business duties, less tax (Niv Horesh, 2013[17]). This indicates that Shanghai still has a long way to go to become an international financial center. In addition, choosing Hong Kong as the RMB offshore financial can be seen as a big step towards RMB internationalization.

After the RMB business started in Hong Kong in 2004, the RMB offshore market kept growing in there. As shown in Table 13 and Figure 15, the central government of People's Republic of China spare effort to support Hong Kong to develop the offshore RMB market, as a result, the number of RMB denominated financial products and RMB deposit in Hong Kong increased rapidly. By the end of November, 2013, the RMB deposit in Hong Kong has been 826.995 billion RMB, which was nearly six times of the RMB deposit in Singapore, and the number of authorized institutions engaged in RMB business has arisen by 144 (HKMA, MAS).

[17] Niv Horesh. 2013. "Development trajectories: Hong Kong vs. Shanghai", *Asian Pacific Economic Literature*, pp. 27-39

Table 13 Development of the offshore RMB market in Hong Kong

Time	Event
Feb 2004	Launched of RMB Business Scheme in Hong Kong.
6 Mar 2006	The RMB Settlement System is launched.
10 Jan2007	Financial institutions on the Mainland areallowed to issue RMB-denominated bonds in Hong Kong.
Jul 2007	The first issue of RMB bonds is launched
Jul 2009	Cross-border RMB trade settlement is introduced in Hong Kong. The settlement scheme is expanded in 2010.
Oct2009	First RMB sovereign bonds of 6 billion are issued in Hong Kong.
22 Nov 2010	Sign"Memorandum of Co-operation on Using Central Moneymarkets Unit for Issuance of RMB Sovereign Bonds".
13 Jan2011	Allow Mainland enterprises to conduct outward direct investments in RMB.
Aug 2011	Li Keqiang announced a series of measures to support the development of Hong Kong as the offshore RMB business centre.
14 Oct 2011	Promulgate the administrative rules for conducting foreign direct investments in RMB.
22 Nov 2011	Signed a renewed currency swap agreement for a term of another three years, with its size expanded to RMB400 billion.
Sep 2012	The launch of RMB currency futures in Hong Kong.
Oct2012	The listing of the first RMB share in Hong Kong.

Note: information collected HKMA, 2014, http://www.hkma.gov.hk/chi/classroom/page/game/timeline/timeline.htm#

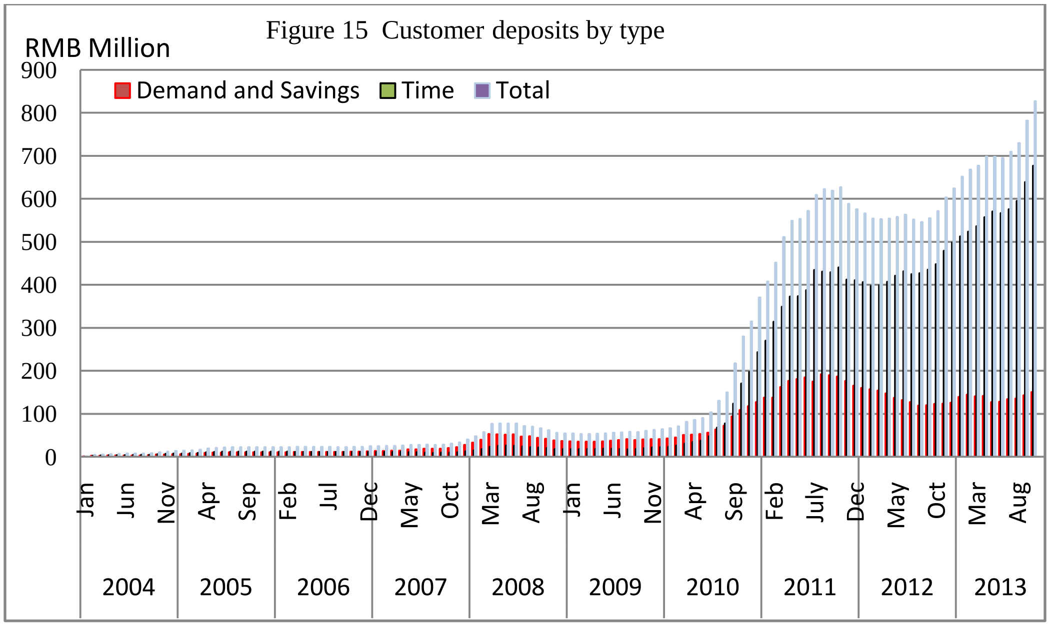


Figure 15 Customer deposits by type

Note: data collected from HKMA, http://www.hkma.gov.hk/eng/market-data-and-statistics/

5.2 Three arbitrage models

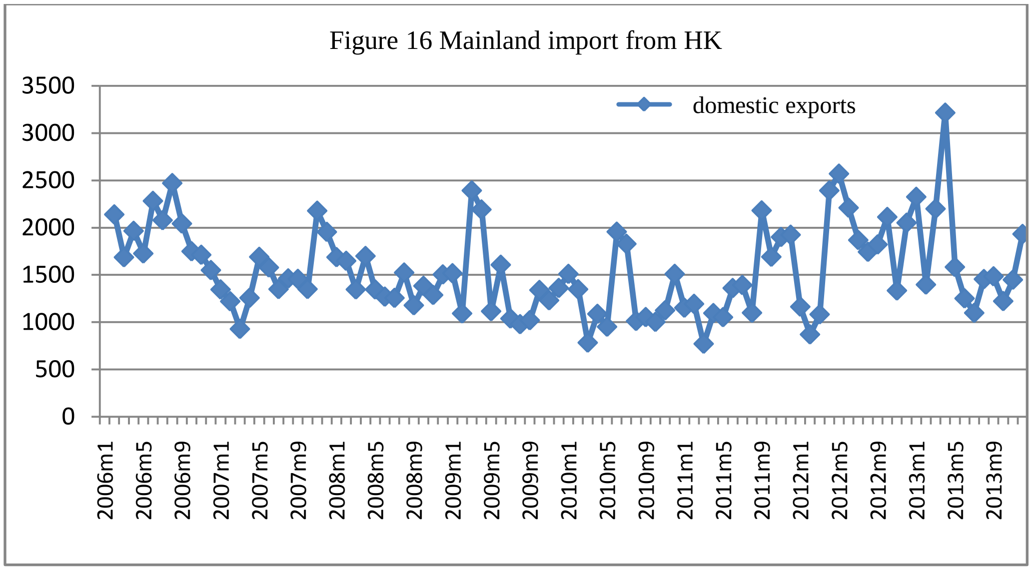
The arbitrage phenomenon

Recently, with the continuous appreciation of RMB, and the higher deposit and loan interest rates in mainland China, large scale of money flow into China to search for supernormal profits. Some directly invest in real estate, some go to private loan market, and some invest in stock and debt market.

There are many channels which hot money and arbitrage money can flow into and out of mainland China. Investors are eager for alternative and high return RMB financial services. To reduce the illegal flow of offshore RMB into mainland China, we not only need to improve and perfect financial regulation and supervision systems, but also need to provide alternative RMB investment channels. Hence, there is an urgent desire for RMB offshore financial services. Hong Kong and Singapore possess the largest volumes of offshore RMB, and only allow RMB settlements and related financial services in Hong Kong, cannot satisfy the need of Southeast Asian investors. So there is a strong economic motivation to establish RMB offshore financial center in Singapore.

It is necessary for China to corporate with other countries to build a RMB offshore financial center outside of China. This is vital to the progress of RMB internationalization. From the data of RMB volume between mainland China and Hong Kong, especially from the third quarter of 2012 to the first quarter of 2013, the inflation data is mainly resulted from fake trade and taking the advantage of “NeiBaoWai Dai” policy. To commit such trade, geographic connection could provide great convenience. This is one of the reasons that the trade data between mainland China and Hong Kong inflated. However, Singapore is not geographically connected with mainland China; this makes it harder to conduct fake trade. Therefore, if Singapore became the next RMB offshore financial center, it can significantly reduce the over-arbitrage in offshore RMB market.

From the practice of Hong Kong, especially recently, fake trade is a major problem of RMB trade between mainland China and Hong Kong. Statistics show that the trade volume fromGuang Dong province to Hong Kong increased 91.6% in the first quarter in 2013. More surprisingly, export volume from mainland China to Hong Kong increased 92.9% in March. These inflated data mainly resulted from fake trading arbitrage, through the interest rate gaps and exchange rate gaps between mainland China and Hong Kong, in some cases, taxation rebates are also contribute to these rocketed trade data. Announced by People’s Bank of China, companies which use RMB as cross-border trade settlement currency will get export taxation rebates.



Note: data collected from the IFS (International Financial Statistics) website

Arbitrage and fake trades now centralized in Hong Kong mainly because that Hong Kong is near Guang Zhou and Shen Zhen, and many trades do not have to go through the supervision of customs. This makes it convenient to conduct fake trading and hot money flow into mainland through these trades. However, it does not mean that geographic feature is the most important reason. Since the first outside-border RMB clearing bank inaugurated in Singapore, it will attract more investors around the world. Then with the volumes of China-Singapore trade grows and tighter connections between these two countries, location and customs supervision will not be the barriers for arbitrage in mainland China any longer. There are other alternative ways to arbitrage in mainland China without fake trading, and the problem centralized at the transactions after RMB flows into China.

With growing number of RMB denominated financial products introduced in Singapore, the RMB assets pool keeps increasing rapidly. Hence, Singapore will meet the same arbitrage problem as those Hong Kong is currently facing. Therefore, to illustrate the following three arbitrage models, we use Hong Kong financial market as example and give some implications to the offshore RMB market in Singapore.

Table 14Trade between mainland China and Hong Kong (USD 100 Million)

	2008		2009		2010		2011		2012	
Item	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Total	1907.29	129.16	1162.29	87.02	2183.02	122.6	2679.83	154.92	3234.31	178.8
Gold	44.8	1.74	37.65	1.12	79.08	1.49	223.27	1.69	398	3.91
Copper	9.96	3.68	7.9	2.32	12.1	3.89	12.82	10.64	10.24	23.5
Nickel	1.06	0.02	1.44	0.01	1.77	0.01	2.91	0.01	0.74	0.01
Aluminium	12.05	3.05	6.9	2.03	9.87	3.45	10.76	7.82	10.79	15.85
Machinery	356.64	6.92	282.39	4.17	411.38	5.9	461.71	6.17	542.19	4.61
Recorder	826.04	41.55	772.38	32.06	986.72	31.99	1170.86	28.79	1384.98	20.27
Railway	17.18	0	3.38	0	18.67	0	31.78	0	18.28	0
Ship	29.29	0.09	46.43	0.09	82.38	0.03	103.97	0.04	97.53	0.07
Precision instrument	127.64	3.93	115.13	2.45	135.91	3.49	150.14	2.4837	211.102	2.10815

Noted: data collected from the China statistics yearbook. The meaning of each number is the following.

Gold: “Natural or ltured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles hereof; imitation jewellery: coin”. Copper: “Copper and articles thereof”. Nickel: “Nickel and articles thereof”. Aluminium: “Aluminium and articles thereof”. Machinery: “Nuclear reactors, boilers, machinery and mechanical appliances: parts thereof”. Recorder: “Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles”. Railway: “Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) trafficsignaling equipment of all kinds”. Ship: “Ships, boats and floating structures”.

Precision instrument: “Optical, photographic, cinematographic, measuring, checking, precision medical or surgical instruments and apparatus; parts and accessories thereof”.

As shown in Table 14, trade volume of goods with high unit value has been greatly increased, especially in the year 2011 and 2012. For example, articles that made of gold or precious metals, high-value electrical equipment or parts thereof, and shipment equipment. Furthermore, the absolute value of copper, nickel and aluminium is relatively small compared with other items listed above. In addition, from 2007 to 2012, the import value is quite small compared with the export value, specifically;the value of “Railway” is zero. This zero value and the increased export value of “Precision instruments” can partly support the view that China is experiencing a change in economic structure. Evidence of this structural change can be found in the exporting data. The relatively small amount of natural metals and their products, considerable large amount of electrical machinery and a growing amount of precision instruments could give an overall picture of this economical change.

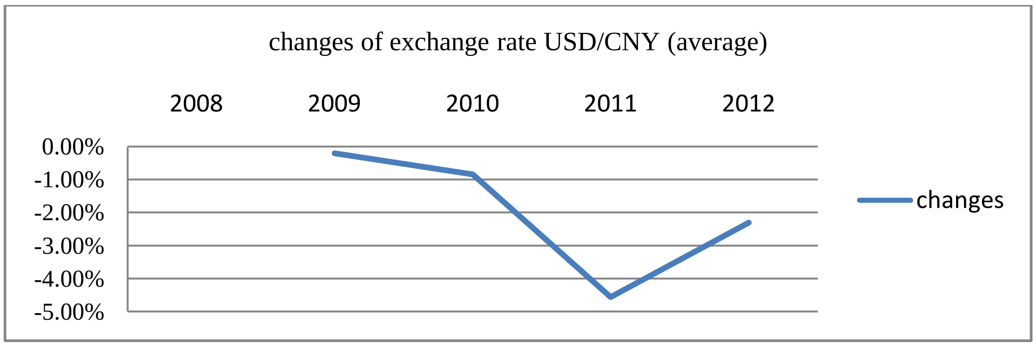
Table 15 Growth rate of the detailed trade goods (%)

	2009		2010		2011		2012	
Item	Export	Import	Export	Import	Export	Import	Export	Import
Total	-39.06	-32.63	87.821	40.887	22.758	26.362	20.691	15.414
Gold	-15.96	-35.63	110.04	33.036	182.334	13.423	78.260	131.361
Copper	-20.68	-36.96	53.16	67.67	5.95	173.52	-20.12	120.86
Nickel	35.85		22.92		64.41		-74.57	
Aluminium	-42.74		43.04	69.95		126.67		102.69
Machinery	-20.82		45.68		12.23		17.43	
Recorder	-6.50		27.75		18.66		18.29	
Railway	-80.33		452.37		70.22		-42.48	

Ship	58.52		77.43		26.21		-6.19	
Precision instrument	-9.80		18.05		10.47		40.60	

Noted: data collected from the formula:growth rate $= \frac{y}{y(-1)} - 1$, where y represent the volume of export or import of the calculated year, y(-1) refers to that of the previous year. For simplicity, only items that have significant fluctuations are listed. The meaning of numbers under the item is the same as that in Table 6. The blank cells are those did not change significantly.

Figure 17 Changes of exchange rate USD/CNY (average)



Noted: data collected from BIS (Bank of International Settlements)

When looking at the growth rate of each item, the year of 2010, 2011 and 2012 have the largest change in export and import volume. When the exchange rate of RMB began to rise in the year of 2010, all the export items started to increase significantly. Seven out of nine export goods have negative export volume in the year of 2009 while all of these seven items change into positive export volume in the year of 2010 and 2011. It can be seen in Table 15, the export volume of gold and precious stones doubled in 2010 and 2011, and the export volume of railway equipment or parts of that is more than four times of that of 2009. In addition, the change in the USD/CNY exchange rate of the corresponding period (2010 to 2012) is also visibly, shown in Figure 17. The gold volume exported from mainland China to Hong Kong was almost doubled, meanwhile, the copper volume imported from Hong Kong to mainland China also increased by 173%. The suddenly increase trade volume is correlated with appreciation of RMB in the exchange market. This can be regarded as en evidence for the arbitrage of exchange rate, which is my first arbitrage model. However, when the central government realized this unusual trade data in the first quarter of 2012, and issued regulations to reduce this kind of trade, the situation changed.This dramatically change is reflected in the export volume from Hong Kong to mainland China in April, May, June, and July of 2013. Recall the Figure 16, it is obvious that the export volume from Hong Kong to mainland China reaches its peak in April, 2013, and then dropped significantly during May to July, 2013. This markedly decreases of the export volume from Hong Kong to mainland China mainly due to the severe regulations on the Letter of Credit and export. The detailed policies will be explained after I illustrate the three arbitrage models, which will show the trade process of the arbitrage.

Arbitrage of exchange rate

In this section, I will explain the three arbitrage models which are commonly used between mainland China and Hong Kong. Some of the information comes from news papers.

The first model concerns about arbitrage of exchange rate. As we know that the exchange rate of onshore RMB and offshore RMB are different. For example, the USD/CNH=6.15 in Hong Kong, while USD/CNY=6.2 in mainland China. Arbitragers take advantage of this difference to make profits.

From Bloomberg 28th, Aug. 2013, we get the exchange rate for USD/CNH=6.1168 (unit USD is equal to 6.1168 CNH), in which CNH refers to Offshore Chinese Renminbi.

From People's Bank of China, the published reference exchange rate of 28th, Aug. Is USD/CNY=6.1667 (CNY refers to Chinese Renminbi). Hence, there is an exchange rate gap of 81.6 basis points (6.1667/6.1168-1=0.816%).

As shown in Figure 18, company A deposits 100 million RMB into its account in bank B, and based on this deposit, bank B provides a Letter of Guarantee or Standby documentary Credit to company D, which is the affiliated company or wholly-owned subsidiary company of company A, through bank C in Hong Kong with amount of 100 million RMB. Then, company D in Hong Kong can get

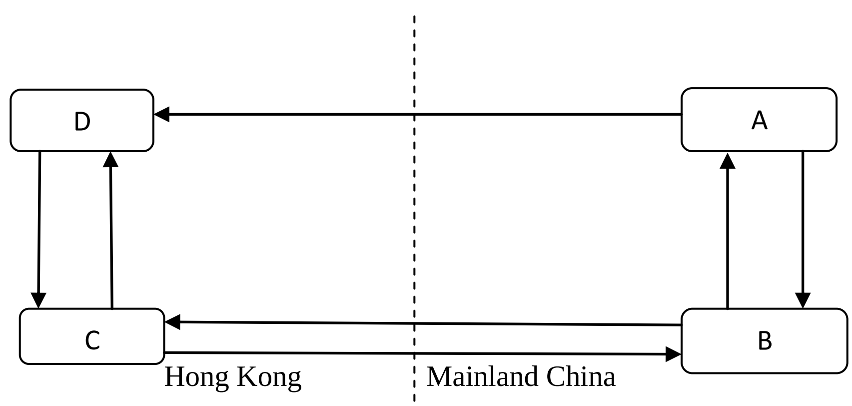
100 million/6.1168=16,348,417.473 USD.

With an export contract from company D in Hong Kong to company A in China flows into China

16,348,417.473USD×6.1667=100.815786 million RMB

Through this trade, company A earns net profit of 815786 RMB per 100 million RMB without risk. The profit rate is 0.816%.

Figure 18 Arbitrage of exchange rate



Arbitrage of interest rate

There are two approaches for interest rate arbitrage, in both of these approaches, the investor can hedge the exchange rate risk.

One way:

HK: 100 million×(1+ 3%) =103,000,000 RMB

Mainland China: 100 million×1+5%) =105,000,000 RMB in total

This kind of arbitrage is easy to realize under current RMB loan market in Singapore. As mentioned in the previous section, the MAS RMB liquidity facility provide RMB loans to companies for international trade purpose based on the three months SHIBOR rate, which is around 5.5% in December, 2013. This lending rate is relatively high compared to commercial loans in Singapore, however, it is still less than the lending rate in mainland China, especially, the lending rate offered by private moneylender companies, which is around 10% or above.This means that if a Singapore-based company S signed an import contract with company M in mainland China for 100 million RMB. Then company S can apply for the RMB loan from MAS RMB Facility scheme and get the 100 million RMB at the rate of 5.5% for three month, and pay this amount to company M.

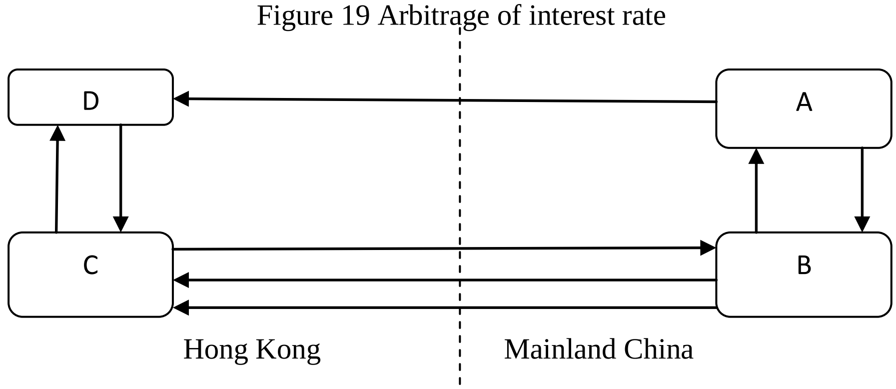
After receiving this payment, company M can either deposit as high yield wealth management products with a return over 6% for three months, or it can lend the money in the private financing market at around 10% for three months. Thereafter, company M can get 101.5 million RMB or 102.5 million RMB after three months.

Finally, through an export contract from Singapore-based company S to mainland company M, the capital flow back to Singapore. After paying the interest to MAS RMB Facility for 101.37 million RMB, the company S can gain 0.13 million RMB or 1.13 million RMB, ignoring operation fees or other expenditures. As long as this profit is larger than the transportation fee plus operation fees used to conduct such international trade, the Singapore-based company will have the incentive to conduct arbitrage.

The second way:

This arbitrage modelalso focuses on the interest rate gap between mainland China and overseas market. The RMB one year deposit rate of financial product in mainland China is currently 5.0%, while the RMB lending rate in Hong Kong is 4.0%.

Figure 19 Arbitrage of interest rate



Company A first borrows 100 million RMB from bank B for two weeks at the lending rate of 6%, and then mortgage in bank B for at least one year to issue L/G or Standby documentary L/C for company D. For risk aversion reason, this amount of deposit will be frozen until the letter of guarantee is settled. With this guarantee, company D can borrow from bank C at a low rate, for example 4% for one year. Secondly, company D import goods from company A to pay the 100 million back to company A, thus company A pays bank B,

$$100 \text{ million} \times (1+ 6\%/52 \times 2)=100{,}231{,}000 \text{ RMB.}$$

In order to make profit, company D will repay this 100 million to company A within two weeks, for example, one week. Thus, after receiving the money, company A can relend it at a higher rate, such as 12% for 1 week. Then company A can use this interest income to pay the interest rate of the bank loan.

After one year, company A withdraw its deposit in bank B and get

$$100 \text{ million} \times (1+5\%) =105{,}000{,}000 \text{ RMB in total.}$$

To clear the guarantee relationship, company A should pay bank C

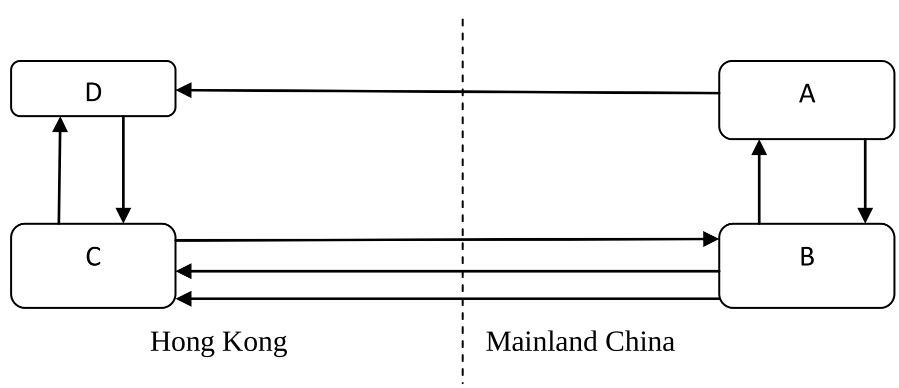
$$100 \text{ million} \times (1+4\%) =104{,}000{,}000 \text{ RMB}$$

Here if assuming company A pay off all the bank loan interest using the one week loan, and thennet profit is 105,000,000-104,000,000-231,000=769,000 RMB for one year.

Arbitrage of exchange rate and interest rate

This method is the most complicated one.

Figure 20 Arbitrage of exchange rate and interest rate



The first stage is the same as arbitrage of interest rate. The difference is that after issuing L/G or Standby documentary L/C, company D borrows USD from bank C in Hong Kong, thus getting 100 million/6.1168=16,348,417.47319 USD at the rate of 2%.

Then by importing from company A, company B transfers this money back to company A in terms of USD. Equivalently, because of the foreign exchange regulation in China, company A does not get USD but instead it gets

$$16,438,417.47319 \times 6.1667 = 100,815,786.03192 \text{ RMB}$$

After paying the two weeks loan, company A remains

$$100,815,786.03192 - 100,231,000 = 584,786.03192 \text{ RMB.}$$

If CNH is more appreciated after one year, for example the rate rises by 2%, and then the new exchange rate is

$$6.1667 \times (1-2\%) = 6.04337.$$

This is because 6.1667 is the reference exchange rate announced by PBOC, banks should buy or sell foreign exchange in the interval of (-2%, +2%) of this reference price. Therefore, after one year, company A gains

$$584,786.03192 + 100 \text{ million} \times (1+5\%) - 6.04337 \times 16,348,417.47319 \times (1+2\%)$$

$$= 4,809,259.61287 \text{ RMB, namely, 4.81 million RMB in one year.}$$

All the three models above are based on Letter of Credit and the “NeiBaoWai Dai” policy; however, there are other arbitrage approaches without depending on the policy and L/C.

PBOC and SAFE implement restrictions on fake trade arbitrage

SAFE (State Administration of Foreign Exchange) of China issued six announcements in May, 2013 to restrict arbitrage between mainland China and Hong Kong. Here I list three most effective regulations.

1. Enforce the management of settlement of banks and restrict foreign currency debt and deposit.
2. Enforce the management of international trade: the capital flow is sever non-balanced with the goods volume or have large capital flows, to explain within 10 days; newly signed trade contracts must be settled using the same currency.
3. Enforce the monitoring and punishment on arbitrage using L/C, and abnormal capital flow.

In the above analysis, it is clearly that Singapore will encounter this arbitrage problem along with its development to become a RMB center. This kind of arbitrage may based on exchange rate fluctuation or interest rate gaps. Therefore, it is important that PBOC and MAS cooperate and take advantage of perfect supervision and regulation systems in Singapore to reduce illegal arbitrage and secure national monetary rights when RMB realizing internationalization step by step.

Chapter 6 Conclusion

In previous three chapters, the background of RMB internationalization, the advantages of Singapore as an OFC, and the cross-border RMB clearing and settlement system are discussed. These indicate that China has a need to establish a RMB offshore center outside of China and Singapore is one of the choices to establish the next RMB offshore center. The cross-border clearing system can provide efficient support to the offshore RMB services, especially through the overseas RMB clearing bank. Thus, the establishment of the first RMB clearing bank outside China is a big advantage of Singapore. In addition, RMB has been gradually accepted as the trade settlement currency in ASEAN. The offshore RMB bond market in Singapore is growing rapidly, which means more companies are willing to use RMB as an instrument to reduce exchange risk and gain financing. The last chapter discusses the arbitrage issue which Singapore may face. Three main models are explained and actions to reduce arbitrage are introduced by the central government of China. Since the arbitrage cost is higher in Singaore than that in Hong Kong, the arbitrage issue may not become a major issue in the offshore RMB markets in Singapore.

In conclusion, Singapore is a promising RMB offshore financial center. As a safe and efficient OFC, and the gateway to Southeast Asian markets, Singapore has great advantages to earn this position. In addition, it has both economic and political motivations to establish RMB offshore financial center. With the growing integration of Asian Pacific countries, Singapore is the suitable place to develop offhsore RMB services. It can promote the RMB regionalization in Southeast Asia and the RMB internationalization.

Furthermore, there are three suggestions for the policy maker: first, People's Bank of China should enhance its supervision on capital flow into China, especially, capital flow into the real estate market.Secondly, the MAS, MTI, Singapore should cooperate with PBoC and SAFE, China to restrict fake trades and to maintain the stability of financial system. Third, with the relaxation of capital control, Chinese government should improve legal and regulation system, especially regulations on money laundering and capital flight.

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Appendices

Table 2 Number of Financial Institutions and Relevant Organizations in Singapore

Type of Institution	Number of Institutions
Commercial Banks	122
Local Bank	5
Foreign Banks	117
Foreign Full Banks	27
Wholesale Banks	53
Offshore Banks	37
Financial Holding Companies	5
Merchant Banks	41
Representative Offices of Banks	39
Institutions with Asian Currency Units	159
Finance Companies	3
Money Brokers	9
Singapore Government Securities Market - Primary Dealers	12
Singapore Government Securities Market - Secondary Dealers	20
Approved Holding Companies	3
Approved Exchanges	3
Approved Clearing Houses	3
Recognised Market Operators	25
Holders of Capital Markets Services Licence	354
Registered Fund Management Companies	166

Exempt Financial Advisers	330
Persons exempted from the requirement to hold a Capital Markets Services licence under Section 99(1)(a),(b),(c) and (d)	115
Exempt Financial Advisers - Companies providing financial advisory services to not more than 30 accredited investors	108
Exempt Fund Managers - Companies providing fund management services to not more than 30 qualified investors	219
Exempt Corporate Finance Advisers - Companies advising on corporate finance to only accredited investors	89
Holders of Trust Business Licence	52
Exempt Persons Carrying on Trust Business	36
Registered Insurers	161
Authorised Reinsurers	6
Lloyd's Asia Scheme	25
Representative Offices of Insurers and Reinsurers	2
Insurance Brokers	70
Insurance Brokers Licensed To Place Business With Lloyd's	6
Exempt Insurance Brokers Carrying on Business as Direct Insurance Brokers	23

Note: data collected from MAS, Aug. 2013, https://secure.mas.gov.sg/FID/

Table 4 The China-ASEAN trade volume (USD 10000)

Country (region)	2010 (total vaule)		2011 (total value)		2012 (total value)	
	Export	Import	Export	Import	Export	Import
Asia	73195484	83495623	89903809	100408463	100681186	103829337
Europe	35518797	21787012	41357108	28717489	39639909	28668986
ASEAN	13815981.	15470072.	17007061	19301809	20425457	19589161
Singapore	3234723	2472875	3557013	2813992	4074187	2853078
Malaysia	2380204	5044680	2788598	6213671	3652528	5830677
Indonesia	2195357	2079672	2921724	3133738	3428338	3195070
Philippines	1154026	1622197	1425538	1799166	1673133	1964413
Thailand	1974108	3319594	2569475	3903910	3119620	3855466
Brunei	36761	66433	74439	56682	125244	37310
Myanmar	347552	96655	482150	167990	567371	129823
Cambodia	134734	9363	231481	18430	270811	21532
Laos	48362	60149	47627	82461	93414	78663
Vietnam	2310154	698454	2909014	1111770	3420811	1623129
UK	3876704	1130519	4412166	1455681	4629716	1680508

Note: data collected from China Statistics Year Book

Table 9 Convertible RMB bond listed in SGX

Item		**N**umber
Exchange	SGX	6
	Multiple	3
Countries	KY	7
	BM	1
	SG	1
Coupon	Average	5.47%
	Highest	7.5%
	Lowest	1.5%

Note: original data from Bloomberg, NUS Bloomberg Terminal. Calculated by the author.

Table 12 Use of Proceeds

Company	Purpose
EVERGRANDE REAL ESTATE G (KY)	1. Fund the repayment of onshore bank borrowings 2. Replenish cash reserves that have been used to repayonshore bank borrowings since January 1, 2011 3.Finance our existing and new property projects
CCBL FUNDING PLT (listed in London) (GB)	Development and expansion of offshore Renminbi business of CCB London
SHUI ON DEVELOPMENT HOLD(KY)	Fund capital expenditures related to our real estate operations and/or acquire, develop, construct or improve assets, real or personal property or equipment or repay existing indebtedness
FUTURE LAND DEVELOPMENT(KY)	Fund the acquisition of land for residential and commercial Property development
CHAOWEI POWER HLDGS LTD (Convertible bonds, listed in SGX)(KY)	Fund future expansions of production capacities, including but not limited to the construction and installation of additional production facilities in Zhejiang, Jiangxi and Hebei provinces
HIDILI INDUSTRY INTL DEV (Convertible bonds, listed in SGX)(KY)	1．The remaining proceeds to continue to expand our existing network of mines, production plants and facilities in South West China through general acquisitions
BIG WILL INVESTMENTS LTD(VG)	Lend the entire gross proceeds from the issue of the Notes, without any deduction, to R&F HK in the form of a multi-currency intercompany loan use the net proceeds to finance offshore expansion opportunities To fund the CNY Note Interest Reserve Account and the USD Note Interest Reserve Account and for general corporate purposes.
ROAD KING INFRAST(2011) (VG)	To make investments in our toll road business, including a potential investment in a new expressway project in Shanxi province
HAINAN AIRLINE HK	Capital expenditure outside of the PRC and the Issuer's working capital and general corporate purposes
SK GLOBAL CHEMICAL INVES(HK)	Capital expenditures in connection with the construction of the Company's EPDM synthetic rubber plant in Ningbo, China, a joint venture project with Ningbo Chemical Industry Development Co., Ltd.
EXPORT-IMPORT BK KOREA(KR)	The repayment of foreign currency obligations and the making of foreign currency loans

Note: information was consolidated by the author from Bloomberg.

Table 16 Data sample-all three years

Name	Industry	Coupon	Issue date	Maturity	Tenor	Bond ratings
EVERGRANDE REAL ESTATE G	Real Estate	7.5	01/19/2011	01/19/2014	3	B+
NOBLE GROUP LTD	Exploration & Production(supply chain, bulk commodities)	4	01/30/2013	01/30/2016	3	NR
PCD STORES GROUP LTD	Retail Discretionary	5.25	02/01/2011	02/01/2014	3	an
LOTTE SHOPPING BUS MGMT	Retail Discretionary	4	02/09/2012	02/09/2015	3	BBB+
ROAD KING INFRAST(2011)	Industrial Other	6	02/25/2011	02/25/2014	3	B+
BAOSTEEL GROUP CORP LTD	Metals & Mining	3.675	02/29/2012	03/01/2015	3	A-
POWERLONG REAL ESTATE HL	Real Estate	11.5	03/17/2011	03/17/2014	3	CCC+
21VIANET GROUP INC	Wire line Telecom Services	7.875	03/22/2013	03/22/2016	3	na
CHINA WINDPIWER GROUP	Utilities	6.375	04/04/2011	04/04/2014	3	na
CHAILWASE FINANCE BVI	Banking	5	04/05/2012	04/05/2015	3	na
SINGAMAS CONTAINER HLDGS	Manufactured Goods	4.75	04/14/2011	04/14/2014	3	na
ZHONGSHENG GROUP	Retail Discretionary	4.75	04/21/2011	04/21/2014	3	na
KAISA GROUP HOLDINGS LTD	Real Estate	6.875	04/22/2013	04/22/2016	3	NR
FUTURE LAND DEVELOPMENT	Real Estate	9.75	04/23/2013	04/23/2016	3	B+
ITNL OFFSHORE PTE LTD	Transportation & Logistics	5.75	04/26/2012	04/26/2015	3	NR
BIG WILL INVESTMENTS LTD	Financial Services	7	04/29/2011	04/29/2014	3	NR
HSBC BANK PLC	Banking	2.875	04/30/2012	04/30/2015	3	AA-
GLOBAL BIO-CHEM TECH	Chemicals	7	05/16/2011	05/16/2014	3	na
ICICI BANK LTD/SINGAPORE	Banking	4.75	05/18/2012	05/18/2015	3	na
YANLORD LAND HK CO LTD	Real Estate	5.375	05/23/2013	05/23/2016	3	BB-
FANTASIA HOLDINGS GROUP	Real Estate	7.875	05/27/2013	05/27/2016	3	B
STANDARD CHARTERED PLC	Financial Services	2.625	05/31/2013	05/31/2016	3	A+
PACIFIC ANDES RES DEV	Food & Beverage	6.5	06/02/2011	06/02/2014	3	na
DBS BANK LTD	Banking	2.5	06/07/2013	06/07/2016	3	AA-

VALUE SUCCESS INTERNATIO	Life Insurance	2.075	06/09/2011	06/09/2014	3	na
KOREA DEVELOPMENT BANK	Government Development Banks	3.3	06/21/2012	06/21/2015	3	A+
UNITED OVERSEAS BANK LTD	Banking	2.5	06/24/2013	06/24/2016	3	AA-
ICICI BANK LTD/DUBAI	Banking	4	06/25/2013	06/25/2016	3	BBB-
SILVERY CASTLE LTD	Consumer Services	2.75	07/14/2011	07/14/2014	3	na
CHINA SHANSHUI CEMENT	Construction Materials	6.5	07/22/2011	07/22/2014	3	NR
GEMDALE INTL HOLDING	Real Estate	9.15	07/26/2012	07/26/2015	3	BB-
EXPORT-IMPORT BK KOREA	Government Development Banks	3.25	07/27/2012	07/27/2015	3	A+
EASTERN AIR OVERSEAS HK	Airlines	4	08/08/2011	08/08/2014	3	na
AUST & N2 BANKING GROUP	Banking	2.9	08/14/2012	08/14/2015	3	AA+
EXPORT-IMPORT BK KOREA	Government Development Banks	0.9	08/25/2011	08/25/2014	3	NR
BP CAPITAL MARKETS PLC	Integrated Oils	1.7	09/14/2011	09/15/2014	3	A
HAINAN AIRLINE HK	Airlines	6	09/16/2011	09/16/2014	3	na
ICICI BANK LTD/SINGAPORE	Banking	4.9	09/21/2012	09/21/2015	3	BBB-
SK GLOBAL CHEMICAL INVES	Chemicals	4.125	09/26/2013	09/26/2016	3	BBB
ASIA PACIFIC PORTS DWVEL	Transportation & Logistics	5.8	10/28/2011	10/28/2014	3	na
VICTOR SOAR LTD	Financial Services	5.75	11/10/2011	11/10/2014	3	na
IDBI BANK LTD	Banking	4.5	11/18/2011	11/18/2014	3	BB+
VALUE SUCCESS INTERNATIO	Life Insurance	4	11/21/2013	11/21/2016	3	na
CCBL FUNDING PLC	Banking	3.2	11/29/2012	11/29/2015	3	A
BAOSTEEL GROUP CORP LTD	Metals & Mining	3.5	12/01/2011	12/01/2014	3	A-
PANDA FUNDING INV 2013	Financial Services	3.95	12/18/2013	12/17/2016	3	na
LDK SOLAR CO LTD	Renewable Energy	10	02/28/2011	02/28/2014	3	na

Note: data collected by author from the Bloomberg Terminal at NUS.